

Volume 7

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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

Before The Honorable William H. Alsup, Judge

SONOS, INC.,	)	
	)	
Plaintiff and	)	
Counter-Defendant,	)	
	)	
VS.	)	<b>NO. C 20-6754 WHA</b>
	)	Related Case No. <b>C 21-07559 WHA</b>
GOOGLE, LLC,	)	
	)	
Defendant and	)	
Counter-Claimant.	)	
	)	

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San Francisco, California  
Tuesday, May 16, 2023

**TRANSCRIPT OF JURY TRIAL PROCEEDINGS**

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United States District Court - Official Reporter

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**Alaina Kwasizur, Sonos Representative**

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7:33 a.m.

P R O C E E D I N G S

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(Proceedings were heard out of the presence of the jury:)

**THE CLERK:** All rise. The court is now in session.

The Honorable William Alsup now presiding.

**THE COURT:** Okay. Welcome back. Let's go to work.

Have a seat.

Okay. How can I help the lawyers this morning? Anything you want to bring up?

**MS. CARIDIS:** Alyssa Caridis. Good morning,  
Your Honor.

**THE COURT:** Good morning.

**MS. CARIDIS:** At the end of the session on Friday, you read out the times allotted for each party so far in trial. I believe, based on the math that you recited in court, you had Plaintiff at 608 minutes --

**THE COURT:** Correct.

**MS. CARIDIS:** -- and Defendant at 487 minutes.

**THE COURT:** That's what my notes say, yes.

**MS. CARIDIS:** We went back and went through all the trial minutes; and according to our count, we agree with your count for Plaintiff at 608 minutes, but we believe the Defendant should be charged 512 minutes to date.

**THE COURT:** Both sides agree?

1           **MR. PAK:** I don't think we met and conferred with the  
2 other side on this. So if we can have time to do that.

3           **THE CLERK:** Please approach the podium.

4           **MR. PAK:** Sorry. This is Sean Pak for Quinn Emanuel.  
5 I don't think we met and conferred on that revised time  
6 estimate so we will --

7           **THE COURT:** Well, I want you to -- I could have  
8 omitted something. In fact, I'll show you my notes, and you  
9 can probably figure out exactly where I went wrong; but I want  
10 you to first meet and confer or at least talk to your  
11 assistant, and then we'll get to the bottom of it.

12           Okay. Thank you.

13           **MR. PAK:** Thank you.

14           **MS. CARIDIS:** Thank you.

15           **THE COURT:** Anything else I can help you with this  
16 morning?

17           **MR. SULLIVAN:** Sean Sullivan on behalf of Sonos,  
18 Your Honor.

19           Just a couple of logistics. Would you like Rule 50(a)  
20 motions to be done outside the presence of the jury?

21           **THE COURT:** 58?

22           **MR. SULLIVAN:** 50(a). Sorry.

23           **THE COURT:** Oh, 50(a). Yes, I do, outside the  
24 presence of the jury.

25           **MR. SULLIVAN:** Okay.

1           **THE COURT:** For judgment as a matter of law; is that  
2 what you mean?

3           **MR. SULLIVAN:** Correct, Your Honor.

4           **THE COURT:** Yes. Yes, of course. Yeah.

5           **MR. SULLIVAN:** Okay. And then have you given any  
6 thought to how much time we're going to have for closing  
7 arguments?

8           **THE COURT:** Yes, but I would like to get your inputs.  
9 What do you think? We haven't even heard the Defense case yet.

10          **MR. SULLIVAN:** I know.

11          **THE COURT:** I think it's premature.

12          **MR. SULLIVAN:** Okay. No problem.

13          **THE COURT:** I think it's premature, but certainly more  
14 than an hour and -- but I -- certainly less than two hours and  
15 maybe less than an hour and a half. So I'm not sure, but I  
16 think it's going to depend on how the rest of the case goes.

17          **MR. SULLIVAN:** Okay, Your Honor.

18               And then last question. Have you given any thought to  
19 when you want to do your charge conference?

20          **THE COURT:** Yes.

21          **MR. SULLIVAN:** Premature?

22          **THE COURT:** It's also premature because I haven't even  
23 got a draft of the instructions yet. You know, we've got so  
24 many things going at once that I don't have those ready for  
25 you.

1           **MR. SULLIVAN:** Okay. No problem, Your Honor. Thank  
2 you.

3           **THE COURT:** All right. Yes.

4           **MR. PAK:** Thank you, Your Honor.

5           **THE COURT:** Yep. Is that it? You don't have anything  
6 more to bring up.

7           **MR. PAK:** No, sir?

8           **THE COURT:** Well, let me give you another issue to  
9 consider.

10                               (Pause in proceedings.)

11           **THE COURT:** And maybe Sonos has addressed this in your  
12 55-page brief with a thousand pages of -- attached thereto, but  
13 most of which we have read.

14           Google completely ignores the issue. I don't know why.  
15 Sometimes I think Google has another patent case going where  
16 they're on the opposite side of these issues, and they're  
17 treading carefully because they don't want to screw up that  
18 other case. Is that true? I don't know. Maybe not.

19           Okay. But you didn't address this point, and I'm not sure  
20 what the answer -- I'll just lay it out there for you because I  
21 want to give everybody a chance to -- to -- it's incorporation  
22 by reference. If you're going to incorporate something by  
23 reference under the CFR, this is the Patent Office's own rules  
24 and they applied back then as well as now, there has to be a  
25 clear intent to incorporate by reference using the root words



1 "incorporate" and "reference"; e.g., incorporate by reference.  
2 So that's one piece of it.

3 Now, I'll stop here and say that the provisional did not  
4 use that phrase. It said "appended hereto." It never said  
5 "incorporate by reference."

6 Essential -- then it goes on to say "Essential material."  
7 Now, that's a term of art, "essential material." And Sonos  
8 denies that any of this is essential material, but let's see  
9 why it matters.

10 This is the CFR talking (as read):

11 "Essential material may be incorporated by reference  
12 but only by way of an incorporation by reference to a U.S.  
13 patent or U.S. patent application publication" -- I'm  
14 going to pause there for a minute. So you can only  
15 incorporate by reference to a U.S. patent or a U.S. patent  
16 application publication -- "which patent or patent  
17 application publication does not itself incorporate such  
18 essential material by reference."

19 So we have this -- let's assume that that extra  
20 sentence -- see, later on it got amended to be put in; but if  
21 there's anything in that -- those appendix that is essential  
22 material to sustain the present patents, as I read this, you  
23 couldn't do that because it would be double incorporation by  
24 reference plus they never use the term "incorporate by  
25 reference."

1           **MR. SHEA:** Can I address that, Your Honor?

2           **THE COURT:** Yeah. I'd like to hear what your answer  
3 to that is.

4           **MR. SHEA:** Yeah, absolutely.

5           So that rule that you're reading, and I think you are  
6 reading it exactly right, Your Honor, but I think the key  
7 difference here is what that rule says is: If you want to rely  
8 on U.S. -- a patent, a granted patent, or a U.S. publication,  
9 something that is already in the public domain at the time  
10 you've made the incorporation by reference statement, you don't  
11 even have to -- you don't have to amend your specification.  
12 You can stop there. You can say "Look at this other document.  
13 It doesn't have to be in the four corners of my specification."  
14 So that's when that rule applies.

15           Here, that rule doesn't apply because we amended. So once  
16 you amend to bring that material into the specification under  
17 1.57(g), Your Honor, you're no longer relying on those external  
18 documents for essential matter because the essential matter, to  
19 the extent it is, and we don't agree that it is, but even if it  
20 were, it's now in your specification. And so, Your Honor,  
21 that -- by virtue of doing that, you're not -- you're not  
22 relying on that part of the rule.

23           And I think the other thing to note, Your Honor, I think I  
24 heard you mention the appendix and that, but I think the  
25 distinction there is the provisional document that appended the

1 appendix, that was all filed as one single document. So that  
2 is -- it's not a matter of being incorporated by reference in  
3 that because incorporated by reference is you're pointing to  
4 something outside the four corners of what you're giving the  
5 Patent Office, and that's -- with the provisional application,  
6 it was all one big PDF file. We gave it to the Patent Office.

7 And so the language around incorporation by reference  
8 there doesn't apply and, in fact, doesn't apply to provisional  
9 applications at all is my understanding, Your Honor.

10 So with the provisional application, you have to give the  
11 Patent Office everything you're saying as part of your  
12 provisional application. You can't point to something outside  
13 the files. And so that is how those rules fit together.

14 (Pause in proceedings.)

15 **THE COURT:** Well, according to my law clerk, the  
16 specification is listed as a separate document from the  
17 appendix.

18 **MR. SHEA:** Yeah.

19 **THE COURT:** It's not one PDF file.

20 **MR. SHEA:** Yeah, sorry, Your Honor. What I should  
21 have said is --

22 **THE COURT:** Didn't you say one PDF file? You did say  
23 that, and now my law clerk has busted you again and found out  
24 that they're separate files.

25 **MR. SHEA:** So I think, Your Honor, what happens is

1 it's provided --

2 **THE COURT:** Every time the story changes. You know,  
3 every time you get up here, the story changes, "Oh, Your Honor,  
4 I misspoke the other day. Oh, my" -- you know, when am I going  
5 to get a straight story from you?

6 **MR. SHEA:** Your Honor, I did not mean at all to  
7 misspeak. What I should have said is "package." All of those  
8 documents were filed together to the Patent Office on  
9 September 12th, 2006.

10 **THE COURT:** As separate files.

11 **MR. SHEA:** As separate listings, yes. It appears to  
12 be the case, Your Honor, that they were separate listings, but  
13 they were -- they were all provided to the Patent Office  
14 together; and the documents themselves say "These are -- all  
15 make up the provisional application."

16 And, Your Honor, this is -- it is an entirely appropriate  
17 practice to file provisional applications that way. You  
18 couldn't do that for a nonprovisional application, it's true.

19 **THE COURT:** Yeah, in this case -- it may be perfectly  
20 okay to do it that way until it matters; and then if you didn't  
21 follow all of the rules, then -- and suddenly it matters  
22 20 years later, 10 years later, then we got to go back and look  
23 and see what counts and what doesn't count.

24 **MR. SHEA:** Of course, Your Honor. And --

25 **THE COURT:** Why isn't this essential matter? That

1 very sentence that you added, the examiner himself said that  
2 the -- on those prior patents that that was not supported by  
3 the record, and -- this overlapping thing.

4 And then -- so then you said, "Okay. We'll take this one  
5 sentence out of the appendix and we'll put it in." You did --  
6 I've gone back and looked at those prior patents that you  
7 didn't want me to look at, and that was the prosecution  
8 history, that the examiner said no to you and then you put in  
9 that sentence. Why isn't that essential?

10 **MR. SHEA:** So, Your Honor, a couple things. So  
11 that -- first of all, that amendment was made to a  
12 specification as a preliminary amendment that had -- before any  
13 office action had been issued by an examiner related to this  
14 issue.

15 **THE COURT:** No, that's true. It may be in this  
16 patent, but I'm talking about the earlier patents. Earlier  
17 patents. Let's see, we've gone back now -- once again, Google  
18 hasn't done its homework but my law clerk and I have done the  
19 homework -- and there were the '532, the '679. The examiner  
20 said, "No." You then amended to put in that very sentence that  
21 you put into this one too, and then you kind of gave up on  
22 those other patents and went with the '558 and the -- this one,  
23 the '966.

24 **MR. SHEA:** Yeah. So, Your Honor --

25 **THE COURT:** But the examiner clearly had found

1 overlapping not to be disclosed by your specification, and then  
2 you amended to put that sentence in, the very same sentence, in  
3 those other pending -- co-pending applications. Am I not true?  
4 Isn't that true?

5 **MR. SHEA:** So, Your Honor, I don't think it's quite  
6 true. Maybe I can try -- maybe --

7 **THE COURT:** See, here every time a lawyer starts with  
8 the word "so," I know that they're about to slide off onto  
9 something that they don't -- they don't want to answer my  
10 question.

11 Answer my question. The examiner rejected, said it did  
12 not disclose --

13 **MR. SHEA:** I think Your Honor may be referring to the  
14 2020 office action in the '532 patent. Is that -- I want to  
15 make sure I'm.

16 **THE COURT:** I don't know. My law clerk gave me a note  
17 said "Examiner objected one month before case started."

18 **MR. SHEA:** Okay. Yeah, I think that's probably what  
19 we're talking about. Okay. So, yeah, I'm happy to address  
20 that, Your Honor.

21 **THE COURT:** Please.

22 **MR. SHEA:** So here's the situation: So at that point  
23 in time the -- we had already made the amendment in that case.  
24 So this is the '532 patent, which is the parent to the two  
25 patents in this case.

1 And we made -- in that particular case, in November of  
2 2019 we made the amendment that we made across all four cases  
3 in that specification, and we made that amendment in  
4 November 2019.

5 So then in 2020, I believe August, then the examiner of  
6 that case came back and objected to our claim to priority back;  
7 and I think it was based on, which I believe is what Your Honor  
8 is referring to, it was based on a claim limitation in that  
9 other case that required indications of two or more zone scenes  
10 to be simultaneously displayed. That was what the examiner put  
11 in the office action as the element he thought lacked priority.

12 Now, in response to that, Sonos wrote a response and told  
13 the examiner, "Examiner, just as a reminder, we already  
14 amended, we already amended and we brought in material from the  
15 specification." And, in fact, the focus of that discussion  
16 wasn't on the sentence that we are. That was certainly part of  
17 the amendment, Your Honor, but really the focus was on  
18 figure -- one of the figures.

19 In any event, we pointed the examiner and we remind --  
20 I've got it right here, it's -- we told the examiner, "You  
21 know, we already did this." We pointed back to our  
22 November 2019 amendment and said, "We are entitled to our  
23 priority date. We took this material from the provisional,  
24 from Appendix A. We moved it into our specification already  
25 under 1.57(g). That's appropriate."

1 And the examiner -- and I think this is actually really  
2 important, Your Honor -- the examiner came back and expressly  
3 in the notice of allowance put a sentence in that says that the  
4 remarks we had filed are accepted -- so he accepted our  
5 reminder to him that we had already made that amendment -- and  
6 suffice to establish support for the claimed subject matter of  
7 that case, and -- and afford the instant application and  
8 effective priority date of September 12th of 2006.

9 So I think this is -- Your Honor is right that the  
10 examiner raised this, although we had already made the  
11 amendment at that point. The examiner -- we didn't have to do  
12 anything further. The examiner looked at that amendment, and  
13 he actually agreed with us, and this actually put the issue  
14 right squarely right in front of him.

15 And I think one of the things that I think we'll note is  
16 that if you look at the case law around this, we cited a couple  
17 cases in our brief on this, it says that when an examiner  
18 affirmatively finds priority date like that, it should be given  
19 an especially high weight when an examiner accepts an amendment  
20 and finds no new matter, and that's exactly -- the examiner was  
21 looking at these exact amendments.

22 **THE COURT:** How can it not be new matter? It was an  
23 amendment to some --

24 **MR. SHEA:** So, Your Honor, when it comes to new  
25 matter, the relevant inquiry is not did you make an amendment;



1 the relevant inquiry is: Did it come from your prior  
2 materials, the incorporated by reference materials, and did it  
3 add new subject matter or concepts beyond what you had in your  
4 prior materials?

5 And the examiner weighed that exact question here. We  
6 made the amendment under 1.57(g). The only way you're allowed  
7 to make those amendments and for them to be accepted is if it's  
8 not new matter. The examiner looked at this exact issue. He  
9 was looking right at these statements, and there's only -- you  
10 know, they were prevalently displayed in what we did. The  
11 sentence was underlined. We told them exactly what we were  
12 doing.

13 He looked right at this on four different applications,  
14 Your Honor. He looked at it four different times, he looked at  
15 that exact same amendment, he looked at our remarks telling him  
16 exactly what we were doing; and he did not object on any of the  
17 four except for here where he reraised it, we reminded him we  
18 made the amendment, and then he affirmatively and expressly  
19 agreed with us that that didn't -- didn't -- we did not lose  
20 our priority date by doing that.

21 And, you know, again, I do want to be clear, Your Honor,  
22 because, again, I really don't want to say -- I want to be as  
23 precise and accurate here as possible, I really am trying  
24 because we have nothing to hide here, Your Honor. I don't want  
25 to misrepresent anything.

1           So I just want to be clear about one thing. That office  
2           action that we've been talking about in the other case, it is  
3           talking about simultaneously displaying indications of two or  
4           more zone scenes.

5           I don't -- the word "overlap" wasn't used there. I don't  
6           want to miss represent that it was. I think it was a slightly  
7           different question the examiner was raising there; but,  
8           nevertheless, you know, the amendment -- the set of amendments  
9           that were made were -- it was the same body of amendments, and  
10          that's what the examiner --

11          **THE COURT:** So you're saying that sentence was not --  
12          I want to be clear. You're saying it was not essential  
13          matter -- material? Not essential material?

14          **MR. SHEA:** So I think for purposes of this case and  
15          this simultaneously displayed, Your Honor, I think the examiner  
16          considered what became Figure 7, which was brought in from the  
17          provisional, I think the examiner did believe that was  
18          essential matter, yes.

19          **THE COURT:** But for the two patents in suit?

20          **MR. SHEA:** That issue was not -- like, this was not  
21          talking about the claim language of the patents in suit and the  
22          word "overlap" or the discussion of overlap was not being  
23          discussed specifically here. It was about simultaneous  
24          display. So --

25          **THE COURT:** Which patent are you referring to?

1           **MR. SHEA:** Sorry, Your Honor. This is the '532  
2 patent.

3           **THE COURT:** I'm talking about the now. I get that  
4 what you're saying; but for our present patents '966 and '885,  
5 was that extra sentence, that new sentence, was that essential  
6 material?

7           **MR. SHEA:** Your Honor, we do not believe it was.

8           **THE COURT:** All right. Did the patent examiner --  
9 what did he say about this?

10          **MR. SHEA:** He did not say one way or the other,  
11 Your Honor, because, again, we made those amendments first in a  
12 different case; and if you look at the file histories and the  
13 timelines of things, it's pretty clear to me that we made the  
14 amendments to the other two strictly for purposes of  
15 conformity. There was not a rejection at issue in that case  
16 that I can find anywhere in the file history regarding 112,  
17 written description, priority date in those two -- in the two  
18 patents in suit, Your Honor.

19          We looked through the file histories carefully. You know,  
20 if there's something that we missed, I apologize, but I just  
21 don't see it. It was a 102 or a 103 rejection, a prior art  
22 rejection, and -- which is a different -- different type of  
23 rejection, of course, and there was nothing that I saw that --  
24 that questioned whether or not that was essential matter.

25          And, Your Honor, I think if you look at what -- what was

1 already in the specification --

2           **THE COURT:** If it was essential material, let's assume  
3 for the sake of argument that it was.

4           **MR. SHEA:** Yes.

5           **THE COURT:** -- what would be the effect of that on  
6 this case?

7           **MR. SHEA:** It would be nothing, Your Honor, because if  
8 it's essential material, as long as you amend your  
9 specification under 1.5(g) to put it into the four corners of  
10 the specification, then you are fully within the law and your  
11 rights as an applicant and a patentee to do that. That's what  
12 the mechanism is for.

13           What -- 1.57(g), that's the whole purpose of it, and we  
14 cited as much case law as we could find on short notice to  
15 Your Honor on this, but this is the procedure.

16           The Patent Office says you can incorporate by reference to  
17 start, to provide things like background and context. That's  
18 okay. And you don't have to bring that material in right away.  
19 You don't have to chunk it all in.

20           However, if during the course of prosecution -- and this  
21 can happen, it happens often actually -- claims evolve, you  
22 make amendments, claim scope changes, it may be the case that  
23 something that was previously incorporated by reference as  
24 nonessential matter all of a sudden now there's an argument,  
25 "Well, maybe it's essential matter." We don't think it is

1 here; but even if it was, this is the procedure. This is what  
2 they allow you to do.

3 **THE COURT:** But now I'm looking at 1.57. Doesn't it  
4 have to have been -- the amendment, doesn't it have to have  
5 been something that was previously incorporated by reference?

6 **MR. SHEA:** That's right, Your Honor, it absolutely  
7 was.

8 **THE COURT:** It wasn't here. It was appended.

9 **MR. SHEA:** No, sir. Your Honor, we incorporated from  
10 the 2007 specification to the provisional filing number 60 --  
11 you know, the U.S. -- sorry, Your Honor. I don't have it on  
12 recall, but we -- the incorporation by reference statement says  
13 the provisional application; and when you incorporate by  
14 reference in that manner, you're incorporating the entire set  
15 of documents that were filed.

16 **THE COURT:** But you didn't -- the provisional -- I've  
17 got here it here somewhere -- did not use the word -- it  
18 says -- I've got it right here. I'm quoting from your  
19 provisional. It does not use the word "incorporate" nor  
20 "reference." It says "Annexed hereto is an Appendix A.  
21 Annexed hereto is also Appendix B." And it says -- so you  
22 didn't use the magic words.

23 **MR. SHEA:** We didn't use it there, Your Honor; but,  
24 again, where the incorporation by reference language had to be  
25 used was in the nonprovisional, the 2007 filing that we made,

1 and there's no dispute that we absolutely did use that language  
2 there. We said that the U.S. provisional application, and we  
3 gave the application number, filed on X date is incorporated by  
4 reference herein for all purposes.

5 **THE COURT:** Read that to me.

6 **MR. SHEA:** Sure, Your Honor.

7 Actually, John, could we pull up -- I think I have it on a  
8 slide so that we can just take a look at it for Your Honor, and  
9 I think it's just my first slide.

10 (Pause in proceedings.)

11 **MR. SHEA:** So, Your Honor, I have it right here, and  
12 it's -- you can see it says the application claims the benefits  
13 of the provisional application number, and we give the number  
14 and the title and we give the filing date, and it says "which  
15 is hereby incorporated by reference for all purposes."

16 And so when we did this, we're referring not just to the  
17 specification, we're referring to the entirety of the document.

18 **THE COURT:** It doesn't say you're referring to the  
19 entirety. They were filed -- contrary to what you told me  
20 earlier, the table of contents for that shows specification is  
21 one document and then the appendix, and the appendix were  
22 separate documents.

23 **MR. SHEA:** That is true, Your Honor. They were  
24 uploaded, it appears, as separate PDFs. That does appear to be  
25 the case, but it does not change that the way these rules work

1 is that anything that was filed with the provisional is  
2 considered to be part of this provisional filing under this  
3 filing number.

4 And, again, I want to point out, Your Honor, we -- we  
5 refer to this Appendix A at least five times to the examiner  
6 when explaining to the examiner what we were doing with these  
7 amendments, why we had priority date, why this was not new  
8 matter. We continually told the examiner "Go look at  
9 Appendix A of the provisional. Go look at Appendix A." And at  
10 no point did the examiner -- I mean, he did not question it,  
11 and the reason is because it's not -- it's entirely within the  
12 procedures of the Patent Office to do this.

13 **THE COURT:** Did he affirmatively bless it?

14 **MR. SHEA:** He affirmatively blessed it in the case you  
15 and I just spoke about. In the '532 patent case, he  
16 affirmatively blessed it there.

17 **THE COURT:** All right. I want to give Mr. Pak two  
18 minutes, and then we'll bring in the jury, to respond and then  
19 we'll continue with this at a later date.

20 Go ahead.

21 **MR. PAK:** Yeah. Thank you, Your Honor.

22 So we laid this out in the filing that we made last night.  
23 The -- we do believe it is new matter. We believe that it is  
24 essential matter. And what we laid out in the prosecution  
25 history of these two patents in suit is that they made the

1 amendment to the specification on August 23rd, 2019.

2 In doing so, they also responded to the Yamaha DME  
3 reference, the prior art, which showed having multiple scenes  
4 but not overlapping scenes according to Sonos.

5 They relied -- they made the specification amendment.  
6 They made a claim amendment. They made distinguishing  
7 arguments about DME. Those amendments were made in order to  
8 allow Sonos to argue that Yamaha, the prior art, although it  
9 disclosed multiple scenes did not disclose overlapping zone  
10 scenes.

11 Therefore, we believe looking at the prosecution history  
12 of the patents in suit, it's clear why they added those  
13 sentences, number one.

14 Number two, as we laid out in the prior briefing,  
15 Your Honor, we do not believe that that was an accurate  
16 incorporation by reference or insertion because the provisional  
17 application, even if you were to consider the appendix -- and  
18 we will research the issue that Your Honor raised about the  
19 magic words -- but even if you were to consider the appendix,  
20 it does not line up with the actual insertion of that sentence  
21 and the characterization of Figure 5B as a zone scene figure  
22 from --

23 **THE COURT:** All right. We've got to stop here.

24 Are all the members of the jury here?

25 **THE CLERK:** Yes, they are, Your Honor.



1           **THE COURT:** All right. Let's bring in the jury and  
2 the witness can come back to the witness stand.

3           Have you figured out whether counsel is correct among your  
4 time?

5           **MR. PAK:** We will figure that out right now,  
6 Your Honor.

7           **THE COURT:** All right. What was the number you gave  
8 me on your time, Ms. Caridis? Their time?

9           **MS. CARIDIS:** I believe it was 512, but I handed  
10 Mr. Pak my Post-it note so --

11           **MR. PAK:** We are checking that now.

12           **THE COURT:** All right. All right.

13                           (Pause in proceedings.)

14           **THE CLERK:** All rise for the jury.

15                           (Proceedings were heard in the presence of the jury:)

16           **THE COURT:** Welcome back. Be seated.

17           Again, I want to thank all of you on the jury for being so  
18 punctual. I hope you had a wonderful long weekend.

19           And we're all set to resume. You will remember that the  
20 witness on the stand is Mr. Malackowski, and he is presented by  
21 Sonos as -- to address issues concerning damages and reasonable  
22 royalty and so forth.

23           And we had done all of the direct examination. Ms. Bailly  
24 had done a fair amount of cross-examination but had not yet  
25 completed it. So we will pick up right there at this point

1 with the continuation of cross-examination.

2 **THE COURT:** Are you all set, Ms. Baily?

3 **MS. BAILY:** Yes. Thank you, Your Honor.

4 **THE COURT:** All right. Please continue.

5 **JAMES MALACKOWSKI,**

6 called as a witness for the Plaintiff, having been previously  
7 duly sworn, testified further as follows:

8 **CROSS-EXAMINATION** (resumed)

9 **BY MS. BAILY:**

10 **Q.** Good morning, Mr. Malackowski.

11 **A.** Good morning.

12 **MS. BAILY:** Mr. Fisher, could you bring up PDX2.21?

13 **BY MS. BAILY:**

14 **Q.** At the end of our time on Friday we were talking about the  
15 products that are at issue in this case, and so that's just  
16 where I want to pick up now.

17 **A.** Yes, ma'am.

18 **Q.** You testified on Friday that Google started selling the  
19 products at issue in this case before the Sonos patents had  
20 issued. Do you recall that?

21 **A.** I do.

22 **Q.** And Google's first smart speaker product was the Google  
23 Home; correct?

24 **A.** Correct.

25 **Q.** And the Google Home was released in November 2016;

1 correct?

2 A. I believe that's true.

3 Q. And for your work on this case, you read media coverage  
4 about the release of the Google Home; is that right?

5 A. In part, yes.

6 THE COURT: Let's bring up DDX6.3 please, Mr. Fisher.

7 BY MS. BAILY:

8 Q. So when you did that work in looking at the media coverage  
9 about the release of the Google Home, you saw that the Google  
10 Home was covered as a competitor to Amazon speaker products; is  
11 that correct?

12 A. True.

13 Q. And the Google --

14 MS. BAILY: We can take that down, Mr. Fisher.

15 BY MS. BAILY:

16 Q. The Google Home Mini was released in October 2017;  
17 correct?

18 A. I believe that's correct. I don't recall the precise date  
19 from memory, but that sounds about right.

20 Q. Do you recall that it was 2017?

21 A. Yes, ma'am.

22 MS. BAILY: We can bring up DDX6.4.

23 BY MS. BAILY:

24 Q. The coverage about the release of the Home Mini also  
25 focused on competition with Amazon products. You saw that in

1 your research?

2 A. True, yes.

3 MS. BAILY: Thank you, Mr. Fisher.

4 If we could bring up DDX6.5.

5 BY MS. BAILY:

6 Q. Now I have two numbers on the screen here,  
7 Mr. Malackowski.

8 This 14 million number is the total number of Google media  
9 players or speakers for which you're assessing a royalty;  
10 correct?

11 A. Correct. That appears to come right from my analysis.

12 Q. And the number of people who own three or more Google  
13 speakers is something less than this 14 million number;  
14 correct?

15 A. We don't know the precise number but, yes, we would  
16 presume it's less than that.

17 Q. And this 94 million number is the number of Google Home  
18 app installations for which you're assessing a royalty;  
19 correct?

20 A. Yes, ma'am.

21 Q. And that's more than six times the number of Google  
22 speakers at issue; correct?

23 A. I believe that's true, yes.

24 Q. And you haven't determined how many Google Home app  
25 installations are actually used with one or more Google

1 speakers; correct?

2 **A.** I don't believe that information -- I've seen that, no,  
3 ma'am.

4 **Q.** And you would agree that the vast majority of these  
5 94 million Google Home app installations are not being used  
6 with any Google speaker at all based on these numbers; correct?

7 **A.** I have not seen numbers that would tell me either way,  
8 ma'am.

9 **MS. BAILY:** Thank you, Mr. Fisher. We can take that  
10 down.

11 **BY MS. BAILY:**

12 **Q.** I just want to circle back to IFTTT just briefly --

13 **A.** Sure.

14 **Q.** -- before I sit down.

15 **THE COURT:** Remind the jury what you're referring to.

16 **MS. BAILY:** Sure. So IFTTT -- and we've also been  
17 referring to it as I-F-T-T-T -- that's the application if this,  
18 then that that we talked about on Friday.

19 **THE COURT:** Good. Thank you. Go ahead.

20 **BY MS. BAILY:**

21 **Q.** The hypothetical negotiation for a license to the '966  
22 patent would have occurred in November 2019; right?

23 **A.** True.

24 **Q.** And at the time IFTTT was free; correct?

25 **A.** Correct. We discussed that on Friday.

1 Q. And include -- the free functionality of IFTTT included  
2 the multiaction applets that Dr. Almeroth used to write his  
3 mini program to play music separately to the two speakers;  
4 correct?

5 A. At that time, yes, ma'am.

6 Q. And you use a 1.99 per month price for IFTTT as the  
7 starting point for your calculation of a reasonable royalty;  
8 correct?

9 A. Yes, ma'am.

10 Q. And then you assume that the monthly fee is going to last  
11 two and a half years; correct?

12 A. I assume -- essentially, yes, that I would not take the  
13 full life of the product.

14 Q. And so to begin your analysis, you look at what's the  
15 value today of paying 1.99 per month for two and a half years;  
16 correct?

17 A. As a starting point.

18 Q. And 1.99 per month for two and a half years, that's \$59.70  
19 paid over time; correct?

20 A. I don't have that math top of hand, but it has to be  
21 discounted to the date of hypothetical not today and that's  
22 part of my analysis, yes.

23 Q. 1.99 per month over two and a half years is almost \$60  
24 paid over time; correct?

25 A. It would be basically \$2 times 30.

1 Q. And when you were doing your reasonable royalty  
2 calculation, you didn't find any evidence that anyone had ever  
3 paid almost \$60 for the IFTTT app; right?

4 A. No. I don't believe that would be true.

5 Q. You found evidence that --

6 THE COURT: There's a double negative problem in that  
7 question and answer, so you should consider whether to re-ask  
8 it in a different way.

9 MS. BAILY: Thank you, Your Honor.

10 BY MS. BAILY:

11 Q. When you were doing your royalty calculation, you didn't  
12 look to see if or how many people had paid for the IFTTT app.  
13 We talked about that last week; right?

14 A. I'm aware that hundreds of thousands of people --

15 Q. So that's not my question.

16 A. Okay, please.

17 Q. At the time of your calculating your reasonable royalty  
18 calculation, you hadn't looked to see if anyone or how many  
19 people had paid for the IFTTT application; correct?

20 A. True. That came later.

21 Q. And so at the time that you did your reasonable royalty  
22 calculations and you submitted them in this case, you hadn't  
23 looked to see whether anyone had paid almost \$60 for the IFTTT  
24 application; correct?

25 A. I did not have the data at that time, correct.

1 Q. Okay.

2 MS. BAILY: Now may I just approach the witness,  
3 please?

4 THE COURT: Yes, please.

5 (Pause in proceedings.)

6 BY MS. BAILY:

7 Q. Just one housekeeping matter before I sit down.

8 I handed you TX6016. Do you see that?

9 A. Yes, ma'am.

10 Q. That's the Outland-Google agreement you reviewed and  
11 testified about on direct?

12 A. From 2011, yes, ma'am.

13 MS. BAILY: I'd like to move TX6016 into evidence.

14 MS. CARIDIS: Your Honor, we have an objection to  
15 this. This witness lacks any foundation. The document is  
16 hearsay. It's a Google document. They need to put a Google  
17 witness on the stand if they want to enter it into evidence.

18 THE COURT: Well, did the -- let me ask the witness.

19 Did you refer to this document in any way in your prior  
20 testimony?

21 THE WITNESS: Yes, in the sense I know it was  
22 considered, Your Honor.

23 THE COURT: I'm sorry?

24 THE WITNESS: Yes, I considered it. I did not rely  
25 upon it, but I was familiar with it.



1           **THE COURT:** All right. It's received in evidence  
2 based on that testimony. 6016 in evidence.

3           (Trial Exhibit 6016 received in evidence.)

4           **MS. BAILY:** Thank you, Your Honor.

5           **THE COURT:** Okay. Redirect Examination.

6                           **REDIRECT EXAMINATION**

7           **BY MS. CARIDIS:**

8           **Q.** Good morning, Mr. Malackowski.

9           **A.** Good morning.

10          **Q.** I wanted to start where Ms. Baily left off briefly.

11           Can you explain why you used the 1.99 price for the  
12 pro version of IFTTT even though that application may have been  
13 free for a time in 2019?

14          **A.** Yes. The *Georgia-Pacific* factors require that you look at  
15 evidence over the term of the license and over the term of the  
16 license we, A, know that they charged 1.99 or up to 9.99 as a  
17 fact; and, B, it's my opinion, later confirmed, that they  
18 weren't going to give it away free forever, that that was a way  
19 to introduce the product to the market; and then lastly, C,  
20 Google didn't need the benefit of a give away to introduce  
21 itself to the market. Google was obviously very well known in  
22 the market.

23          **Q.** Thank you.

24           Do you recall on Friday Google's counsel asking you about  
25 the cost approach in valuing damages in a patent case?

1 A. I do.

2 Q. Is the cost approach a standalone way of doing damages  
3 calculations?

4 A. It is not.

5 Q. Can you explain why that is?

6 A. Yes. So when you would sit down at a hypothetical  
7 negotiation, you would talk about three general approaches one  
8 of which is the cost approach. The hypothetical licensee, in  
9 this case Google, would say "I might have a cheaper way of  
10 doing this so I should pay less." And that's something that  
11 should be considered, but that alone doesn't set the royalty  
12 rate because the patent owner would say: Well, that may be  
13 true, but you still want to use my invention and we have to  
14 come to a reasonable rate. And if you use my invention, it  
15 affects me. I may lose sales. I may have to lower my price.  
16 I'm going to lose my reputation. So although I have  
17 appreciation for you hypothetical licensing may have a lower  
18 cost option, that doesn't set a limit to the royalty because we  
19 have to compromise and take into account the effect on the  
20 licensor.

21 Q. And are you aware of any acceptable noninfringing  
22 alternatives in this case to the two patents that are asserted  
23 here?

24 A. I am not.

25 Q. And Ms. Baily just showed you a copy of the

1 Outland Research agreement; correct?

2 A. Yes, ma'am.

3 Q. Have you seen any evidence that Google was practicing the  
4 patents contained in the Outland Research agreement at the time  
5 it signed that agreement?

6 A. No, ma'am.

7 Q. Have you seen any evidence that Outland Research was  
8 competing with Google in any way prior to Outland Research  
9 selling some of its patents to Google?

10 A. No, ma'am.

11 Q. And how, if at all, do those facts inform the hypothetical  
12 negotiation in this case?

13 A. It relates to the level of competition in the negotiation  
14 and the notion that a nonpracticing entity or a noncompetitor  
15 would receive a lower royalty than head-to-head competitors,  
16 such as a Sonos and a Google.

17 Q. And on Friday do you recall answering questions about your  
18 reliance on certain Sonos agreements?

19 A. Yes, ma'am.

20 Q. And I believe you mentioned that the Sonos-Legrand  
21 agreement is informative but not fully economically comparable  
22 to the hypothetical negotiation; is that right?

23 A. That's exactly right.

24 Q. And can you explain what you meant by that?

25 A. So the Sonos agreements help us because we understand the

1 type of license Sonos would seek, which is a running royalty,  
2 and they tell us what Sonos would charge for the entirety of  
3 their portfolio, which was the 30 to \$35.

4 But as I described, that's sort of a buffet price. Not  
5 everyone's going to use all 1,000 or 1,500 of Sonos patents as  
6 was discussed in trial. They tend to license for particular  
7 areas of technology that they want -- one, two, or three -- and  
8 they pay the full price for that.

9 So we know that that's the most that would be received.  
10 So economically it's a cap. And my job was to determine if  
11 it's just this one set of technology, what would be a fair  
12 price; and obviously I concluded it would be much, much lower,  
13 85 to 87 cents a unit.

14 **Q.** Okay. Changing topics, do you recall Google's counsel  
15 asking you about the 70/30 profit split during your  
16 cross-examination?

17 **A.** Yes, ma'am.

18 **Q.** And do you recall that Google's counsel suggested that in  
19 the real world, the app developer both takes the risk of  
20 development and sales and receives 70 percent of the revenue  
21 while in the hypothetical negotiation you say that Google would  
22 receive 30 percent even though it takes the risk of development  
23 and sales?

24 **A.** Generally, yes.

25 **Q.** So can you explain why you think the 70/30 split between

1 Sonos and Google is useful here?

2 **A.** I think it's directly applicable to the experience of  
3 Google sharing with innovators. We have to remember that the  
4 innovator here was, in fact, Sonos and they, in fact, own that  
5 innovation. If the patents are valid and infringed, it's  
6 exclusively theirs.

7 Google is taking that innovation and distributing on its  
8 platform, whether it be the app or the speakers, and that's  
9 really, in my view, no different than the literally tens of  
10 thousands of apps that are on the Google platform where there's  
11 that same 70/30 split.

12 **Q.** On cross-examination Google -- also Google's counsel also  
13 asked questions to suggest that you didn't reduce your numbers  
14 by accounting for customers' use of the zone scene technology.  
15 Do you recall that?

16 **A.** Yes.

17 **Q.** Can you explain why you didn't factor that into your  
18 calculation?

19 **A.** Well, I think I did factor it in, but not in the way that  
20 was suggested on cross-examination.

21 So, A, all of those units are asserted to be infringing,  
22 and I have to assume they're infringing and, therefore, there  
23 has to be a minimum measure of damage for each and every one.

24 B, I did take into account the propensity that users would  
25 have multiple speakers to take advantage of that invention.

1 That was not a required deduction, but it ended up being a  
2 deduction of 70 percent.

3 And then, C, it's the capability that's also important.  
4 The technology is embedded within the products so that as the  
5 consumer owns those products over two and a half years or 10  
6 years or longer, they have the option to adopt that later.  
7 It's kind of like the hand brake in your car. You don't use it  
8 every day, you may not use it ever; but you want it there  
9 because when you need it or when you desire it, that's why you  
10 pay for it.

11 **Q.** Thank you.

12 Google's counsel also asked you questions about applying  
13 the same royalty rate to each of the accused products without  
14 considering the price difference of those products. Do you  
15 recall that?

16 **A.** I do.

17 **Q.** And can you explain why you think it's appropriate here to  
18 apply the same rate without considering the difference in  
19 prices of the products?

20 **A.** Again, multiple reasons but, first, because that's what  
21 the Sonos license agreements tell us; that it's, for example,  
22 that 30 or \$35 per unit independent of the price of the  
23 product. It only varies on the quantity of the product or in  
24 some cases if it's an overseas sale. So that would be a  
25 primary number one.

1 And then, number two, the benchmark that we're using, one  
2 of the benchmarks, the IFTTT, also does not vary based upon the  
3 price of the product to which you apply it. So it would be  
4 consistent with the reference I start with.

5 **Q.** So do Sonos' previous licenses to its patent portfolio  
6 offer different rates for differently priced products?

7 **A.** No, they do not.

8 **Q.** And Google's counsel has also asked whether you have ever  
9 actually determined whether anyone has paid for the IFTTT  
10 application; right?

11 **A.** She did.

12 **Q.** And on Friday you said that you had looked into that  
13 information; correct?

14 **A.** Yes, ma'am.

15 **Q.** And can you explain to the jury what you found out  
16 regarding whether anyone has paid for IFTTT?

17 **A.** Clearly they have; and my investigation, which included  
18 multiple conversations with the IFTTT development team, there  
19 have been hundreds of thousands of customers who have paid.

20 **MS. BAILY:** Objection, Your Honor. This is far beyond  
21 the scope of any opinions that were submitted in this case.

22 **THE COURT:** Well, but you did ask that question,  
23 didn't you, on --

24 **MS. BAILY:** I did, Your Honor.

25 **THE COURT:** So I think this is within the scope of

1 your cross-examination. Overruled.

2 **MS. BAILY:** Fair enough.

3 **THE COURT:** Please ask the question or continue with  
4 your answer, please.

5 **THE WITNESS:** Thank you, Your Honor.

6 So, yes, I was able to confirm there have been hundreds of  
7 thousands of paid adopters as well as millions of adopters on  
8 the free account.

9 **BY MS. CARIDIS:**

10 **Q.** And you understand that Google started using the patented  
11 technology in 2015 and Sonos started using it in 2020; correct?

12 **A.** Yes, ma'am.

13 **Q.** Would you expect people to have used IFTTT to group either  
14 Sonos speakers or Google speakers after those dates?

15 **A.** No. Once the technology is embedded in these products,  
16 you wouldn't need IFTTT. That's in part the whole point of  
17 using the invention.

18 **Q.** And Google's counsel also asked you on Friday if you tried  
19 to figure out if anyone besides Dr. Almeroth ever used the  
20 IFTTT app to group speakers like Dr. Almeroth. Do you recall  
21 that?

22 **A.** I do.

23 **Q.** Do you have any information relevant to whether anyone  
24 aside from Dr. Almeroth has ever suggested to group speakers  
25 using IFTTT?



1     **A.**     So I explored that issue with IFTTT directly, and they  
2     don't have that information. I do note, though, that on the  
3     Sonos forum there are customers suggestions in that regard.

4             **MS. BAILY:** Your Honor --

5             **THE COURT:** Yes.

6             **MS. BAILY:** -- you sustained an evidentiary objection  
7     to just this point.

8             **MS. CARIDIS:** Again, Your Honor, that evidentiary  
9     objection was sustained subject to Google's counsel opening the  
10    door, which they did.

11            **THE COURT:** Let me ask this: When did you talk to the  
12    IFTTT developer team?

13            **THE WITNESS:** My team spoke to them before my report.  
14    I spoke to them in response to reviewing the other expert  
15    reports. So more recently.

16            **THE COURT:** When?

17            **THE WITNESS:** Three weeks ago.

18            **THE COURT:** Is there anything in writing in your  
19    reports that substantiate what you just said?

20            **THE WITNESS:** In my deposition there's reference and I  
21    shared the discussions of my team speaking with the developers.

22            **THE COURT:** Is that true?

23            **MS. BAILY:** No, Your Honor.

24            **THE COURT:** All right. We'll deal with that after the  
25    jury is out.

1 What is your current objection?

2 **MS. BAILY:** Your Honor sustained an objection to the  
3 Lutron post, if you recall.

4 **THE COURT:** The what?

5 **MS. BAILY:** The Lutron -- the use of Lutron to group  
6 speakers.

7 **THE COURT:** I think that's true; isn't it?

8 **MS. CARIDIS:** Your Honor, you sustained the objection  
9 so that we could not bring it out. We could not use the  
10 document with Mr. Lambourne, but you very clearly said that if  
11 Google's counsel opened the door, that all bets were off.

12 And Google's counsel asked the question, and I'm looking  
13 at page 1147 of the trial transcripts (as read):

14 "When you were doing your royalty calculation, you  
15 didn't try to figure out if anyone besides Dr. Almeroth  
16 had ever used the IFTTT app in the way Dr. Almeroth did?"

17 We would submit, Your Honor, that that was opening the  
18 door to the very discussion that we -- that we're talking  
19 about.

20 **THE COURT:** What do you say to that?

21 **MS. BAILY:** Well, Your Honor, that document doesn't  
22 have any bearing on this. That document doesn't say  
23 otherwise --

24 **THE COURT:** Well --

25 **MS. BAILY:** -- as you found.

1           **THE COURT:** -- did you do any of this homework prior  
2 to your deposition?

3           **THE WITNESS:** My team spoke to IFTTT. I did not, and  
4 I believe I shared that.

5           **THE COURT:** We're talking about the Lutron right now.  
6 The Lutron, is that --

7           **MS. CARIDIS:** The forum post, Your Honor.

8           **THE COURT:** The forum post. Did you --

9           **THE WITNESS:** Oh, I'm sorry.

10          **THE COURT:** Did you --

11          **THE WITNESS:** No. That came after reviewing  
12 Mr. Bakewell's analysis.

13          **THE COURT:** It came when?

14          **THE WITNESS:** After receiving the other side's expert  
15 in preparation for trial.

16          **THE COURT:** All right. I'm going to sustain the  
17 objection.

18                               (Pause in proceedings.)

19          **BY MS. CARIDIS:**

20          **Q.** Mr. Malackowski, during your cross-examination, you also  
21 discussed the fact that the pro version of IFTTT would allow a  
22 consumer to write many different multiaction applets. Do you  
23 recall that?

24          **A.** Yes, I do.

25          **Q.** Now, could a user use an unlimited number of multiaction

1 applets at any given time with the pro version of IFTTT?

2 **A.** No. You would be limited to 20.

3 **Q.** And of those 20, how many multiaction applets would you  
4 have to dedicate to the purpose of saving and invoking groups  
5 in order to produce a comparable result to the patented  
6 technology?

7 **A.** You would need an applet for each group you created. You  
8 would need at least two to have overlapping speakers.

9 **Q.** And I believe during the cross-examination Google's  
10 counsel gave you an example where she asked you about  
11 programming an applet to do one thing while you're on vacation  
12 and then when you come home, you reprogram that same applet to  
13 do something else. Do you recall that?

14 **A.** I do.

15 **Q.** Would the fact that a user can reprogram one of their 20  
16 multiaction applets to do something else be relevant to the  
17 discussion we're having here?

18 **A.** No. It would not change the value of using an applet for  
19 this purpose.

20 **Q.** On cross-examination you mentioned that IFTTT is a tool,  
21 like a tube of glue. Do you remember that?

22 **A.** I do.

23 **Q.** If you pay a dollar for a tube of glue and use it to fix a  
24 chair, how much did it cost to fix that chair?

25 **A.** Well, it cost you the dollar plus the time to fix the

1 chair. You have to pay the full amount.

2 Q. And what is the significance of that analogy to your  
3 analysis?

4 A. Because you need to pay, in this case, the full tube of  
5 the glue even if you're only using a little bit of it. You  
6 need to acquire the entire app even if you're only using two  
7 applets.

8 Now, that said, I went through and made a calculation  
9 effectively saying if you only use a little bit of the glue,  
10 we're only going to charge you a little bit. So it's  
11 conservative.

12 Q. Okay. I'd like to shift focus a bit to the Google Home  
13 app.

14 You understand that that's at least part of what is  
15 accused of infringing in this case; right?

16 A. I do.

17 Q. And Google's counsel asked you questions about all sorts  
18 of things you can do with the Google Home app on Friday. Do  
19 you recall that?

20 A. Yes.

21 Q. And she asked you whether there are lots of things you can  
22 do with the Google Home app that has nothing to do with  
23 speakers; right?

24 A. It's true, there are.

25 Q. On the same token, there are lots of things you can do

1 with IFTTT that has nothing to do with speakers; correct?

2 **A.** Correct. They're comparable in that regard.

3 **Q.** So it's fair to say that both Google Home app and IFTTT  
4 are software that can perform a wide range of functions one of  
5 which includes grouping speakers; right?

6 **A.** Yes, ma'am.

7 **Q.** And how, if at all, does that factor into your analysis  
8 under *Georgia-Pacific* Factor 12?

9 **A.** *Georgia-Pacific* Factor 12 specifically asks that you look  
10 for analogous inventions and analogous markets; and that, in my  
11 opinion, is one of the reasons I selected IFTTT.

12 **Q.** And related to that, can you remind the jury of your own  
13 lawn mower analogy and explain how it fits in with IFTTT?

14 **A.** Sure. The analogy simply was you want to value the  
15 technology of a given lawn mower that I showed in the  
16 photograph. Well, what is that technology worth? You can walk  
17 into a Home Depot, if you find the same one, boom, we're done.  
18 But you might walk into Home Depot and find a riding tractor  
19 and a push mower without a motor. Those won't be comparable  
20 and not helpful.

21 But you could alternatively turn to a lawn service and say  
22 "Instead of buying a mower, I'll hire the kid next-door to mow  
23 my grass," and that service helps to represent the value of the  
24 technology to that homeowner.

25 **Q.** And then to what extent, if at all, did you apportion the

1 price of that comparable technology, the price of IFTTT, down  
2 to the technological footprints of the invention in this case?

3 **A.** Several steps. I started with the IFTTT pricing tier,  
4 which went up to \$9. I instead selected the fill-in-the-blank  
5 lowest minimum price of 1.99. I then reduced it by 90 percent  
6 to say you only need to take into account two apps not 20. I  
7 then reduced it by 70 percent to take into account the fact  
8 that many people don't have multiple speakers. I then reduced  
9 it for two and a half years instead of the life of a phone or a  
10 speaker that could be quite extensive. And I then ultimately  
11 divided that 70/30. So there were substantial multiple  
12 conservative adjustments.

13 **Q.** Thank you, Mr. Malackowski.

14 **MS. CARIDIS:** Your Honor, I pass the witness.

15 **THE COURT:** Okay. Thank you.

16 And now we go back. Do you have anything more, Ms. Baily?

17 **MS. BAILY:** Just a few questions, Your Honor.

18 **RECROSS-EXAMINATION**

19 **BY MS. BAILY:**

20 **Q.** First of all, I just -- you mentioned the Sonos agreements  
21 in your redirect just now. Do you recall that?

22 **A.** Yes, ma'am.

23 **Q.** And I think you said that they don't offer different rates  
24 depending on the price of the product being sold; is that  
25 right?

1 A. No. There is a tier schedule. The primary schedule has  
2 no difference. There is some difference based upon quantity,  
3 based upon geography, and that there is for the very small  
4 products a limitation of its like under \$6 or something to that  
5 extent.

6 Q. Right. If the product is under a hundred dollars, there's  
7 a lower royalty rate under the Sonos products. Do you recall?  
8 That under the Sonos license agreements?

9 A. I think it might be 3 or \$6 perhaps. I don't recall  
10 specifically.

11 Q. But the price of the product for which the royalty rate  
12 would be lower is a hundred dollars. Do you recall that?

13 A. I think that's right.

14 Q. Now, just going back to IFTTT, when you looked into the  
15 IFTTT payments far after the time that you calculated your  
16 royalty in this case, you found out that IFTTT has received  
17 less than \$700,000 total for its pro version over time;  
18 correct?

19 A. I don't recall that number. Perhaps you can refresh me.  
20 I recall a number of users. I don't know how long the users  
21 were using the service so I don't remember a total.

22 Q. Sitting here now, you don't know how much anybody has paid  
23 to IFTTT for its pro version over time; correct?

24 A. Just that there were hundreds of thousands of subscribers  
25 who would each pay at least 1.99. I don't know how long they



1 subscribed.

2 Q. When you looked into the IFTTT issue after you did your  
3 calculations in the case, you found that less than 120,000  
4 people have paid for a subscription under IFTTT; correct?

5 A. I don't recall that number specifically. Perhaps you can  
6 refresh me where that's coming from.

7 Q. So sitting here now you don't have a number of people who  
8 have paid for a subscription to IFTTT in mind; correct?

9 A. Only that it's a large six-figure number. I don't know  
10 the precise number.

11 Q. I think you made an analogy to glue in your redirect.

12 A. And in my direct, yes.

13 Q. And so you're making an analogy between Sonos' patents and  
14 glue? Do I have that right?

15 A. No. I'm making an analogy between a tool that you have to  
16 purchase and then only use part of at a time as related to my  
17 apportionment in the applicability of the analysis.

18 Q. Now, people buy glue because it can fix all sorts of  
19 things; right?

20 A. Yes.

21 Q. People don't buy glue because it can fix one thing in one  
22 specific way; correct?

23 A. It depends upon their particular need. They may have gone  
24 to the store to fix the vase, bought the tube, and that may be  
25 the only time that tube is opened.

1 Q. Part of the value proposition of glue you would agree is  
2 that glue can be used for all kinds of purposes; correct?

3 A. Of course.

4 Q. And Sonos doesn't have a patent on glue; right?

5 A. I don't think so.

6 Q. It has a patent on doing one thing grouping in one very  
7 specific way; correct?

8 A. Well, there are multiple patents, multiple claims, so --  
9 but, generally speaking, at issue in this case is the speaker  
10 grouping technology.

11 Q. Sonos has patents on doing one thing, grouping, in one  
12 specific way, static groups overlapping; correct?

13 A. I can't answer that yes. I think at that level it's more  
14 technical. I understand there are multiple patents and  
15 multiple claims and each of them describe a difference. So I  
16 would defer to Dr. Almeroth.

17 Q. At issue in this case is a specific way to group  
18 overlapping speakers; correct?

19 A. Again, there are at least two ways because there are two  
20 patents in suit or two aspects of it.

21 Q. You can't use patents to do all kinds of things. You can  
22 use the Sonos patents to group speakers in overlapping speaker  
23 groups; correct?

24 A. That is the focus or the thrust of the technology, I do  
25 agree with that.

1 Q. And it's that specific thing that we have to value in this  
2 case; right?

3 A. And, more specifically, Google's use of that thing and the  
4 impact to Sonos from letting Google use it.

5 Q. Sir, we're trying to value Sonos' two patents in this  
6 case. That's your job; right?

7 A. But in the context of the hypothetical, which invokes all  
8 15 factors.

9 Q. And Sonos' patents can't do everything that IFTTT can do;  
10 correct?

11 A. Correct.

12 MS. BAILY: Thank you. That's all.

13 THE COURT: Okay. Can the witness step down?

14 MS. CARIDIS: Yes, Your Honor.

15 THE COURT: All right. Thank you, Mr. Malackowski.

16 THE WITNESS: Thank you, Your Honor.

17 THE COURT: You can step down and leave all those  
18 documents there. The lawyers will take care of that.

19 (Witness excused.)

20 THE COURT: Okay. Next witness.

21 MR. RICHTER: Good morning, Your Honor. Cole Richter  
22 for Sonos.

23 Sonos' final witness will be via video. It's a 20-minute  
24 video of a Google product manager.

25 THE COURT: Okay. So we're going to --

1           **MR. PAK:** If we can just have the name and the date of  
2 the deposition.

3           **THE COURT:** Yes, please. That's a good --

4           **MR. RICHTER:** Absolutely. The witness' name is  
5 Christopher Chan. The date of the deposition was November 29,  
6 2022.

7           **THE COURT:** Okay. Ready for another video deposition?  
8 Remember, it counts just as much as live testimony.

9           Please roll the tape.

10                   (Video was played but not reported.)

11           **MR. RICHTER:** Your Honor, may I move at this time  
12 those exhibits referenced during the video into evidence?

13           **THE COURT:** Please go ahead.

14           **MR. RICHTER:** Thank you. TX128, TX130.

15           **THE COURT:** Wait. 128?

16           **MR. RICHTER:** 128.

17           **THE COURT:** Any objection?

18           **MS. BAILY:** No objection, Your Honor.

19           **THE COURT:** Received.

20                   (Trial Exhibit 128 received in evidence.)

21           **THE COURT:** 130?

22           **MR. RICHTER:** 130, yes, Your Honor.

23           **THE COURT:** 130. All right. Any objection?

24           **MS. BAILY:** No objection.

25           **THE COURT:** Received.

1 (Trial Exhibit 130 received in evidence.)

2 **MR. RICHTER:** TX138.

3 **MS. BAILY:** No objection.

4 **THE COURT:** Received.

5 (Trial Exhibit 138 received in evidence.)

6 **MR. RICHTER:** TX139.

7 **MS. BAILY:** No objection.

8 **THE COURT:** Received.

9 (Trial Exhibit 139 received in evidence.)

10 **MR. RICHTER:** Thank you.

11 **THE COURT:** All right. Next witness.

12 **MR. SULLIVAN:** Sonos rests, Your Honor.

13 **THE COURT:** All right. You read all the stipulations  
14 to the jury that you wish to read, all of that, so you're  
15 resting.

16 **MR. SULLIVAN:** We did, Your Honor. We're resting.

17 **THE COURT:** Great. We've reached a milestone in the  
18 case. You've now heard the Plaintiff's case. You've heard  
19 some of the Defense case because you've heard the  
20 cross-examination; and in a few minutes we're going to start  
21 with the -- with Google's first witness.

22 Let me ask you this: Are you ready to begin right now?

23 **MR. PAK:** I can, Your Honor. If we wanted to take a  
24 quick break, I could set up as well, but it's up to Your Honor.

25 **THE COURT:** All right. We'll take a break a little

1 early to allow the lawyers to set up. Please remember the  
2 admonition. Please don't talk about the case. Continue on  
3 with the admonitions.

4 We'll see you back here in 15 or 20 minutes.

5 **THE CLERK:** All rise for the jury.

6 (Proceedings were heard outside the presence of the jury:)

7 **THE COURT:** All right. Be seated.

8 Is there a Rule 50 motion?

9 **MR. PAK:** Yes, Your Honor.

10 As we indicated before, Your Honor, we'd like to move for  
11 a Rule 50(a) on the all the issues that we reserved; however,  
12 if Your Honor permits us, we'd like to take up oral argument  
13 tomorrow morning on a few of the issues and then file a written  
14 submission later in the afternoon, if that would work for  
15 Your Honor.

16 **THE COURT:** All right. Any objection?

17 **MR. SULLIVAN:** No objection, Your Honor.

18 **THE COURT:** Okay. We'll do that.

19 Okay. What's -- did you look at the time?

20 **MR. PAK:** Yes, Your Honor. I believe, Mr. Kim, have  
21 you met and conferred on the time?

22 Your Honor, we'll do that during the break and report back  
23 to Your Honor.

24 **THE COURT:** That's what you keep saying. How much  
25 time does it take? When I come back, I want the answer.

1           **MR. PAK:** Thank you, Your Honor.

2           **THE COURT:** Anything else?

3           **MR. PAK:** No, Your Honor.

4           **THE COURT:** You have somebody new at your table.

5           **MR. PAK:** Yes. I'd like to introduce my colleague,  
6 Jason Williams, and he'll be introducing one of our witnesses  
7 today.

8           **THE COURT:** All right. Thank you. You should  
9 introduce him to the jury as well when the moment comes.

10          Okay. We'll take our break too.

11          **MR. PAK:** Thank you.

12          **THE CLERK:** Court is in recess.

13                   (Recess taken at 8:56 a.m.)

14                   (Proceedings resumed at 9:13 a.m.)

15          (Proceedings were heard out of the presence of the jury:)

16          **THE COURT:** All right. Be seated, please.

17          **MR. PAK:** Your Honor, we do have those numbers. I met  
18 and conferred with the other side.

19          **THE COURT:** All right. What are the numbers?

20          **MR. PAK:** So the time used so far for Sonos is 608,  
21 and the --

22          **THE COURT:** That's where they started with today?

23          **MR. PAK:** Yes. That's the start -- at the end -- at  
24 the start of the day today. Thank you, Your Honor.

25          And at the start of the day today, Google had used

1 503 minutes.

2 **THE COURT:** 503?

3 **MR. PAK:** Yes, sir.

4 **THE COURT:** Is that agreeable?

5 **MS. CARIDIS:** Yes, Your Honor.

6 **THE COURT:** Okay. I don't know how I made that  
7 mistake, but thank you for the correction.

8 All right. Okay. Thank you.

9 Okay. She's -- who's your first witness going to be?

10 **MR. PAK:** Your Honor, it's Ken MacKay.

11 **THE COURT:** Why don't you bring the witness in so we  
12 can get -- get him ready to go.

13 **MR. PAK:** Thank you, Your Honor.

14 (Pause in proceedings.)

15 **THE COURT:** Are you the witness?

16 **MR. MACKAY:** Yes.

17 **THE COURT:** Okay.

18 All right. Go ahead and stand -- go ahead and just have a  
19 seat in the chair, and then we'll swear you in as soon as the  
20 jury is in -- in the room.

21 **MR. RICHTER:** Your Honor, Cole Richter for Sonos.

22 May I offer the time split for the very final video we  
23 just played?

24 **THE COURT:** Okay. Go ahead.

25 **MR. RICHTER:** It would be 19 minutes to Sonos and



1 1 minute to Google.

2 **THE COURT:** Thank you.

3 **MR. RICHTER:** Thank you.

4 (Pause in proceedings.)

5 **THE CLERK:** All rise for the jury.

6 (Proceedings were heard in the presence of the jury:)

7 **THE COURT:** Be seated, please.

8 All right. We're now going to start with the Defense  
9 case.

10 Mr. Pak, you may call your first witness for Google.

11 **MR. PAK:** Yes, Your Honor. We call Mr. Ken MacKay.

12 **THE COURT:** MacKay? All right, the clerk will now  
13 swear him in and then turn on the air-conditioner.

14 **THE CLERK:** Please stand.

15 **KENNETH JOHN MACKAY,**  
16 called as a witness for the Defendant, having been duly sworn,  
17 testified as follows:

18 **THE CLERK:** Thank you.

19 **THE COURT:** I didn't hear your answer.

20 **THE WITNESS:** Yes, I do.

21 **THE COURT:** All right. Thank you.

22 **MR. PAK:** Your Honor, may I hand up a bottle of water  
23 to the witness?

24 **THE COURT:** Yes, you may. He has one already.

25 **MR. PAK:** Oh, you do? Perfect.

1           **THE CLERK:** Please be seated.

2           State your name for the record and spell your last name.

3           **THE WITNESS:** My full name is Kenneth John MacKay.

4           Last name m-a-c capital K-A-Y.

5           **THE COURT:** Great. Welcome again.

6           First question.

7                           **DIRECT EXAMINATION**

8           **BY MR. PAK:**

9           **Q.** Good morning, Mr. MacKay?

10          **A.** Good morning.

11          **Q.** Can you introduce yourself to the jury?

12          **A.** Hello. My name is Ken. I'm married. I have --

13               **THE COURT:** Wait, wait, wait. Use the microphone. We  
14          can't hear you.

15               **THE WITNESS:** My name is Ken. I'm married. I have  
16          two kids age 10 and 6. We moved to the Bay Area about eight  
17          years ago.

18               I am a Google engineer, and I've been working there since  
19          February of 2015.

20          **BY MR. PAK:**

21          **Q.** Now, Mr. MacKay, have you been here during the entire  
22          trial as Google's representative?

23          **A.** I was out for some periods, but I was here for most of the  
24          time.

25          **Q.** Thank you.

1 And do you have a general understanding of the specific  
2 use case that Sonos alleges Google of infringing in this  
3 litigation?

4 **A.** Yes, I think so.

5 **Q.** And what is -- are there different types of groups that  
6 the Google -- Sonos -- Google speakers provide?

7 **A.** Yes. We support static groups and dynamic groups.

8 **Q.** And what is the difference between dynamic and static  
9 groups?

10 **A.** A static group is created by the user beforehand; whereas,  
11 a dynamic group is when you add devices to an ongoing music  
12 session.

13 **Q.** And between the two, the static and the dynamic groups, do  
14 you have an understanding of which specific type of grouping is  
15 at issue in this case?

16 **A.** Specifically static groups.

17 **Q.** So from this point on, sir, I'm only going to be asking  
18 you about static groups as provided by the Google speakers. Is  
19 that okay with you?

20 **A.** Okay.

21 **THE COURT:** That's fine. You can proceed in that  
22 manner, but I have a feeling that the jury is not remembering  
23 all the details from last week and that you might help everyone  
24 out by giving an example of static and an example of dynamic so  
25 that we all clearly have that in mind. So I suggest you

1 proceed in that manner.

2 **MR. PAK:** Thank you, Your Honor.

3 **BY MR. PAK:**

4 **Q.** So just give us an example of a dynamic group as provided  
5 by Google's speakers.

6 **A.** So an example of a dynamic group would be if you start by  
7 playing music to a single speaker and then later on while music  
8 is playing you wanted to add another speaker to that playback,  
9 and so you can use Google's technology to do that and then the  
10 other speaker would start playing the same music that the  
11 original speaker was playing, but it would stop as soon as you  
12 stopped playing music.

13 **Q.** Can you give us an example of a static group, which is the  
14 use case at issue in this case?

15 **A.** A static group would be where you use the Google Home app  
16 to set up a group beforehand. So you select the speakers that  
17 you want to include and you name it, and then you created that  
18 group; and then later on, you can play music to that group and  
19 all the speakers.

20 **THE COURT:** But don't -- do you have to store it? Do  
21 you have to save that definition?

22 **THE WITNESS:** We do save some information, Your Honor.

23 **THE COURT:** All right. You didn't use that word, but  
24 let's say you have three rooms and you set it up to be used  
25 later; right?

1           **THE WITNESS:** That's right.

2           **THE COURT:** Doesn't that imply that you're saving that  
3 definition to be used later?

4           **THE WITNESS:** We do save some information about the  
5 group for use later.

6           **THE COURT:** All right.

7           **MR. PAK:** We'll get into that, Your Honor.

8           **THE COURT:** Please do.

9           **BY MR. PAK:**

10          **Q.** So, Mr. MacKay, do you -- I understand that you have  
11 prepared some demonstratives or slides to help illustrate your  
12 testimony here today.

13          **A.** Yes.

14          **Q.** All right. Let's go to the next slide.

15               I want to ask you about your work when you first joined  
16 Google. And was there a specific feature that you were focused  
17 on at the time?

18          **A.** The first thing I worked on when I joined Google was the  
19 speaker groups feature.

20          **Q.** Okay. And what is the product for which you were  
21 designing that functionality?

22          **A.** It was for the Chromecast Audio dongle.

23          **Q.** And on this slide do you see a picture of the  
24 Chromecast Audio dongle?

25          **A.** Yes. It's in the upper right corner.

1 Q. Thank you.

2 And I think you testified that you joined Google in early  
3 2015. What happened in March 18th, 2015?

4 A. March 18th was when I first wrote code for the speaker  
5 groups feature.

6 Q. And what happened on March 26th, 2015?

7 A. That was when the first code was approved and merged into  
8 our code base.

9 Q. And what happened on March 30th, 2015?

10 A. That was when I finished my initial design doc for the  
11 speaker groups feature.

12 Q. And what happened on March -- on May -- let me back up.

13 What happened on May 8th, 2015?

14 A. That was when I wrote the code to handle the join groups  
15 functionality.

16 Q. And I see your face on top, but I also see the face of  
17 Mr. Tavis Maclellan. Can you tell us what his involvement was  
18 for the accused grouping functionality?

19 A. Mr. Maclellan was another engineer who worked with me on  
20 the design and implementation of speaker groups functionality.

21 Q. And what is your relationship like today with  
22 Mr. Maclellan?

23 A. We're still friends.

24 Q. Okay. And how long did it take you and Mr. Maclellan to  
25 develop the Google speaker grouping technology?

1   **A.**   The implementation was complete around early September of  
2   2015 and the feature was launched to the public in December of  
3   2015.

4   **Q.**   So that would be roughly six to nine months?

5   **A.**   That's right.

6   **Q.**   Now, can you please turn to Exhibit TX6454 in your binder?

7   **A.**   (Witness examines document.)

8   **Q.**   Do you recognize this document?

9   **A.**   Yes.

10   **Q.**   And what is it?

11   **A.**   This is my initial design for the speaker groups feature.

12   **Q.**   And did you write this document?

13   **A.**   Yes, I did.

14           **MR. PAK:**   Your Honor, I'd like to move TX6454 into  
15   evidence.

16           **THE COURT:**   Any objection?

17           **MR. SMITH:**   I didn't get a copy of the exhibits.

18                   (Pause in proceedings.)

19           **MR. SMITH:**   No objection.

20           **THE COURT:**   Thank you.   Received in evidence.

21                   (Trial Exhibit 6454 received in evidence.)

22           **MR. PAK:**   May I publish it to the jury?

23           **THE COURT:**   Publish it, please.

24           **MR. PAK:**   Thank you.

25   \\ \\

1 **BY MR. PAK:**

2 **Q.** What document are we looking at here?

3 **A.** This is the initial design document I wrote for the  
4 speaker groups feature.

5 **Q.** And around what time did you develop this document?

6 **A.** This was in March of 2015.

7 **Q.** And can you explain to the jury, what was the goal for you  
8 when you wrote this document?

9 **A.** The goal of this document was to describe some different  
10 options for group configuration as well as some other aspects  
11 of speaker grouping.

12 **MR. PAK:** And, Mr. Fisher, could you highlight "There  
13 are a few different options for managing group configuration"  
14 sentence?

15 **BY MR. PAK:**

16 **Q.** I see -- if you scroll down, Mr. Fisher -- that there are  
17 four options here. I'd like to ask you about the first one and  
18 the fourth one. Are you with me?

19 **A.** Yes.

20 **Q.** What was the first option that you considered for the  
21 grouping technology for Google?

22 **A.** So in this option, all of the devices in a group would  
23 have to be present whenever you change the group configuration  
24 and you would have to store all of the group members somewhere.

25 **Q.** And I see that there's a pro easy to implement and



1 platform side, but you also listed some cons to this option.

2 Do you see that?

3 A. Yes.

4 Q. Can you just briefly summarize for the jury what are some  
5 of the negatives or cons associated with that option?

6 A. When devices are offline, it would mean that the group  
7 couldn't be configured and might not work properly.

8 Q. I want to scroll down to Option 4.

9 Do you see a fourth option called ad hoc group membership?

10 Do you see that?

11 A. Yes.

12 Q. And can you just read into the record that paragraph after  
13 "Ad hoc group membership"?

14 A. Sure. It says (as read):

15 "In this method of group configuration, every device  
16 knows which groups it is a member of but does not have any  
17 a priori knowledge of other group members. Each group is  
18 identified by a name so devices can be added to a group as  
19 long as the device is online and the user knows the  
20 desired name. Note that the group discovery mechanism  
21 should ensure the cast app knows about the existing groups  
22 of online devices."

23 Q. A priori knowledge, can you explain to the jury what you  
24 meant by that statement?

25 A. So that means that devices -- each device doesn't know --

1 doesn't have stored information about what other members of the  
2 group exist so it doesn't know which other devices are members  
3 of that group.

4 **Q.** And if we scroll down, let's turn to page 2 of this  
5 document.

6 In the middle there you wrote (as read):

7 "I think that Option 4 is the best choice."

8 Do you see that?

9 **A.** Yes.

10 **Q.** And what did you mean by that?

11 **A.** I thought that this choice -- I thought that Option 4 had  
12 the best tradeoffs, and this is the option that we ultimately  
13 implemented.

14 **Q.** And was that the ad hoc grouping option that you described  
15 earlier in the document?

16 **A.** That's right.

17 **Q.** And just to be clear, is that Option 4 what you actually  
18 implemented for Google?

19 **A.** Yes, it is.

20 **Q.** And can you explain this second sentence? (as read):

21 "I don't think that the ability to know the group  
22 membership of offline devices is particularly valuable."

23 **A.** So in our system when we're playing part of a group, it  
24 doesn't matter which devices are offline. We only care about  
25 the devices that are actually online.

1 Q. In your Google design, do you ever look in the past to see  
2 what the grouping or membership information of a particular  
3 group was in order to play music as a group?

4 A. No.

5 Q. And why not?

6 A. Well, like I said, we don't -- it doesn't -- the system  
7 doesn't care about which -- what things happen in the past. We  
8 only care about the current state of the network.

9 Q. Okay. We'll talk a lot more about that.

10 MR. PAK: Let's pull up TX6453. Your Honor, I believe  
11 this is already in evidence.

12 BY MR. PAK:

13 Q. Is it -- do you see that this document is called  
14 "Multizone Cast Shell Integration"?

15 A. Yes.

16 Q. Did you write this document?

17 A. Yes.

18 Q. And it has a date of January 8th, 2016. Do you see that?

19 A. Yes.

20 Q. So can you explain to the jury the timing here? We -- you  
21 testified that you wrote the code and implemented it in 2015,  
22 yet we see a document dated January 8th, 2016, describing that  
23 functionality.

24 A. So at Google we often -- after we've implemented  
25 something, we often go back and document exactly what we

1 implemented as a guide for other engineers who are trying to  
2 understand what we've written.

3 Q. And if we scroll down, there's a section titled "Join  
4 Multizone Group." Do you see that?

5 A. Yes.

6 Q. And you also wrote "Adds the target device to a multizone  
7 group." Do you see that?

8 A. Yes.

9 Q. Is the target device here the speaker that you're trying  
10 to add to a group?

11 A. That's right.

12 Q. And below that there's a message or type called "Multizone  
13 Join underscore Group." Do you see that?

14 A. Yes.

15 Q. And you've heard that message or command being discussed  
16 throughout this case; correct?

17 A. Yes.

18 Q. And I want you to explain to the jury, Mr. MacKay, the  
19 data that is sent as part of the JoinGroup message starting  
20 with you UUID.

21 A. So the UUID is an identifier for the group. It's a random  
22 string essentially.

23 Q. Does that random string ID contain any information about  
24 the actual grouping or the identity of members of a group?

25 A. No, it doesn't contain information about the identity of

1 the members.

2 Q. The next is "Name." Do you see that?

3 A. Yes.

4 Q. What is that indicating?

5 A. That's the name that the user assigned to the group.

6 Q. And, again, does that name contain any information about  
7 the actual grouping or membership information of a group?

8 A. No, it does not.

9 Q. And then there's one more here. It says "Optional  
10 Manually Configure Leader." Do you see that?

11 A. Yes.

12 Q. Can you explain to the jury what you meant by this  
13 optional feature?

14 A. So this is a field that we use internally at Google for  
15 testing if we want to set up the group in a specific way to  
16 test in specific scenarios.

17 Q. Is that field expected to be used in the field when you're  
18 actually shipping the speakers?

19 A. No.

20 Q. So it is not being used; correct?

21 A. Not in the field.

22 Q. Okay. And then just looking at the specific fields that  
23 you used for testing -- leader, self, leader IP -- even those  
24 values, do they contain any grouping information in terms of  
25 the actual membership of a particular group?

1 A. No, they don't identify a specific device.

2 Q. And, again, why are you not sending the actual membership  
3 or grouping information to any of the speakers?

4 A. Because we don't need to know it.

5 Q. What are you focused on?

6 A. Our system focuses on the current state of the system at  
7 any time.

8 Q. Okay.

9 MR. PAK: Let's pull up DDX7.3.

10 (Pause in proceedings.)

11 BY MR. PAK:

12 Q. Okay. So we're going to the next slide. What are we  
13 seeing on the left-hand side?

14 A. It shows a depiction of the Google Home app.

15 Q. And you have "Create setup display and invoke." Do you  
16 see that?

17 A. Yes.

18 Q. All right. So let's run through some of these slides.

19 So what do we see there?

20 A. So the user has hit "Create" to create a group and then as  
21 a result of that, the Google Home app sends a JoinGroup command  
22 to each of the devices that the user has selected.

23 Q. And is that the same JoinGroup command being described in  
24 your design document that we saw?

25 A. Yes.

1 Q. All right. On the right what's being depicted with the  
2 different speakers?

3 A. So this shows that each speaker has received the group  
4 name and the group ID.

5 Q. Can you tell us in this particular example what's the  
6 name?

7 A. The name is downstairs.

8 Q. And what's the ID for the group?

9 A. The ID is 1234.

10 Q. And, again, when you send -- when the Google Home sends  
11 the JoinGroup command, does it convey any information about the  
12 actual grouping or membership information of a group?

13 A. No.

14 MR. PAK: Let's go to the next slide.

15 (Pause in proceedings.)

16 BY MR. PAK:

17 Q. And just to orient the jury, we're talking about both the  
18 old design as well as the new design for Google's group  
19 technology; is that correct?

20 A. That's correct.

21 MR. PAK: So let's go to the next slide.

22 BY MR. PAK:

23 Q. Now we're going to talk about exactly how this system  
24 works.

25 Can you describe for us generally what are some of the

1 characteristics of Google's grouping technology?

2 **A.** So one characteristic is that the system is adaptive. So  
3 it adapts to current network conditions and which devices are  
4 actually available. It's continuous so the system is  
5 continually observing changes and adapting to what happens.  
6 And it is automatic, so this system works without user  
7 intervention.

8 **Q.** Is it okay if we refer to this technology as ACA?

9 **A.** Yes.

10 **Q.** Okay.

11 **MR. PAK:** So let's go to the next slide.

12 **BY MR. PAK:**

13 **Q.** So what are you showing us here with this slide?

14 **A.** This slide shows a downstairs group containing four  
15 speakers. Each speaker is advertising "I'm part of the  
16 downstairs group," and that allows -- and they're all listening  
17 to each other. They're all listening to these advertisements.

18 And each speaker also advertises a number which tells the  
19 other device in the network how good that device would be as a  
20 leader for the group.

21 **Q.** So there's some numbers written in the middle there on a  
22 whiteboard. What are those numbers signifying?

23 **A.** Those are the leader quality numbers that I was referring  
24 to.

25 **Q.** So if we look on each speaker, they have bars like you



1 would see on a phone; is that right?

2 A. Yes.

3 Q. And what are you trying to convey with those different  
4 bars?

5 A. The bars are indicating the Wi-Fi signal strength.

6 Q. And I see the number 9 for the green or the -- I don't  
7 know what color that is, but the speaker on the upper left-hand  
8 corner 9, what is that signifying?

9 A. So that indicates that the quality in this example for  
10 that speaker is 9. So the way we determine the quality is in  
11 part based on the Wi-Fi signal strength of each device. So  
12 that device has a good Wi-Fi signal so it has a high leader  
13 quality.

14 Q. And we see this clock running continuously on the right.  
15 What are you trying to convey by that?

16 A. That indicates that these advertisements and the devices  
17 listening to them are -- is happening all the time, is  
18 happening continuously.

19 Q. How fast can these types of information change?

20 A. It can happen at any time, but at least once per minute.

21 MR. PAK: So let's go to the next slide.

22 BY MR. PAK:

23 Q. So what are you showing us here with the next slide?

24 A. So this shows that the upper left device, since it has the  
25 highest leader quality at the moment, is chosen as the leader

1 for the group.

2 **MR. PAK:** Let's go to the next slide.

3 **BY MR. PAK:**

4 **Q.** So now you're showing us that that information about the  
5 signal quality representation has been wiped using an eraser.  
6 What are you trying to convey with that analogy?

7 **A.** Whenever an update occurs, we overwrite the previous  
8 information and we only keep the -- the current information  
9 about all the devices.

10 **THE COURT:** Can I interrupt with a question or two?

11 **MR. PAK:** Sure.

12 **THE COURT:** First, is this the redesign or is this the  
13 original system?

14 **THE WITNESS:** Both, Your Honor.

15 **THE COURT:** Okay. And the other question is: Just a  
16 minute -- you had said five minutes ago that each -- each  
17 ZonePlayer, or in your case speaker, did not know who the other  
18 members were of the group.

19 **THE WITNESS:** That's right.

20 **THE COURT:** So how can they communicate to do this  
21 comparison which one is going to be the leader if they don't  
22 know who else is in the group? That was the -- you see my  
23 point? So what -- how do you explain that?

24 **THE WITNESS:** Let me explain.

25 Each device sends out a broadcast to everything in the

1 network. So anything that's connected to your home network, it  
2 will send out a broadcast saying "I'm a member of a group with  
3 this ID and here is my leader number." And so any device on  
4 the network can receive that.

5 And then all of the devices -- or any device that's also a  
6 member of that group will receive that information. They're  
7 always listening. And then they'll know, oh, there's another  
8 device out there that's also a member of this same group with  
9 this ID, and it can compare the leader quality numbers.

10 **THE COURT:** The speakers do that comparison or does  
11 the controller do that comparison?

12 **THE WITNESS:** The speakers do, Your Honor.

13 **THE COURT:** Okay. All right. Thank you for the  
14 clarification.

15 Go ahead, counsel.

16 **MR. PAK:** Thank you, Your Honor.

17 So let's move to the next slide.

18 **THE COURT:** Wait a minute.

19 Is there -- I can't read what my law clerk wrote here. It  
20 looks like C-O-P-E. She says "Don't worry."

21 Okay. All right. Thank you.

22 Go ahead.

23 **MR. PAK:** Thank you, Your Honor.

24 **BY MR. PAK:**

25 **Q.** So now we moved a little bit forward in time, and we see

1 that the environment has changed; correct?

2 A. Yes.

3 Q. So the Wi-Fi signals are changing continuously. Here what  
4 are you depicting with the specific numbers at this point in  
5 time?

6 A. So now we see that the lower right device has a higher  
7 Wi-Fi signal strength and the upper left device has a lower  
8 Wi-Fi signal strength, and the respective leader quality  
9 numbers have changed. And so those values that are being  
10 broadcast across the network are different.

11 Q. So at this moment in time the green speaker on the right  
12 lower corner has a number 9 and all the bars are at the maximum  
13 level. Do you see that?

14 A. Yes.

15 Q. So what is that conveying?

16 A. That conveys that since it has a higher signal strength,  
17 it has a higher leader quality.

18 Q. Okay.

19 MR. PAK: Let's go to the next slide.

20 BY MR. PAK:

21 Q. So at this moment in time when 4, 5, 3 and 9 are being  
22 broadcast on the network, what would happen in the system?

23 A. Since the lower right device now has the best quality, it  
24 will be selected as the leader for the group.

25 Q. Would it be okay if we use leader election to describe

1 this process?

2 A. Yes. That's how we describe it.

3 Q. And so this leader election process, how often can that go  
4 on in the system?

5 A. It happens continuously all the time.

6 Q. So you can have -- in the same system even when the  
7 members are not changing, could you have a situation where the  
8 leader is moving around within the group?

9 A. Yes.

10 MR. PAK: Let's go to the next slide.

11 BY MR. PAK:

12 Q. And, again, you see the wiping of those numbers. What are  
13 you conveying there?

14 A. This indicates that a change has occurred and so the  
15 previous information is being replaced.

16 Q. Okay.

17 MR. PAK: Let's go to the next slide.

18 BY MR. PAK:

19 Q. Now, this time we see that one of the speakers, the one  
20 that was previously the leader, the green speaker on the lower  
21 right-hand corner, is now off the network for some reason. Do  
22 you see that?

23 A. Yes.

24 Q. So what happens in this situation?

25 A. So now the devices notice that that device is no longer

1 online. They no longer receive any information from it, and  
2 now they need to select a new leader from the remaining  
3 devices.

4 Q. And so in this case, which of these remaining three  
5 speakers at this moment in time has the highest leader quality  
6 or Wi-Fi strength?

7 A. The top right device.

8 Q. That's 5; is that right?

9 A. Yes.

10 MR. PAK: So let's go to the next slide.

11 BY MR. PAK:

12 Q. So what happens once that leader election process occurs  
13 at that moment in time?

14 A. The devices have chosen the top right device as the  
15 leader.

16 Q. Okay. So let's summarize this for the jury.

17 MR. PAK: If you go to the next slide.

18 BY MR. PAK:

19 Q. So over time, can you explain to the jury what is  
20 happening here in this ACA technology?

21 A. Over time both the device that's chosen as the leader and  
22 the set of devices that are actually considered to be part of  
23 the group may change at any time.

24 Q. So in this ACA technology, is there a need to store actual  
25 grouping or membership information of the speakers at the time

1 the group is created so that later you can use it to play music  
2 on a group?

3 A. No. We only store the ID and name.

4 Q. And we saw that you looked at various options in your  
5 design document; correct?

6 A. Yes.

7 Q. And you chose this one as the best choice; correct?

8 A. That's correct.

9 Q. And this is the one that you implemented for both the old  
10 and new design; is that right?

11 A. That's right.

12 Q. All right.

13 MR. PAK: Let's go to the next slide.

14 BY MR. PAK:

15 Q. So, first of all, how many modes of operation are there in  
16 Google speakers in terms of group or individual playback?

17 A. There are three modes.

18 Q. And can you just walk us through? And are they depicted  
19 on the right-hand side "Idle, standalone, and group"?

20 A. Yes, that's right.

21 Q. And can you explain to the jury what is idle mode?

22 A. Idle mode is when there is no app running on the speaker  
23 so it's not able to play media.

24 Q. Is it configured for any type of playback operation in  
25 idle mode?

1 A. No.

2 Q. Standalone mode, can you tell us what it means to be in  
3 standalone mode?

4 A. Standalone mode is where an app has been played on the  
5 speaker targeted towards that individual device. So the device  
6 is ready to play music on that one device.

7 Q. And what about group mode? Can you explain that to the  
8 jury in the Google speakers?

9 A. Group mode is when an app has been started targeted  
10 towards a group.

11 Q. Okay. So, Mr. MacKay, in this example I see musical notes  
12 coming out of each speaker, but they're color matched to the  
13 speaker. Do you see that?

14 A. Yes.

15 Q. So what are you trying to convey here with this  
16 demonstrative?

17 A. This indicates that all four speakers are in standalone  
18 mode, so they're each playing their own different music.

19 Q. So all four speakers are separately in their own  
20 standalone mode in this example; is that correct?

21 A. That's correct.

22 MR. PAK: Let's go to the next slide.

23 BY MR. PAK:

24 Q. So we saw this JoinGroup command that we talked about  
25 earlier coming from the Home app?



1 A. Yes.

2 Q. And does that get sent to each of the four speakers that  
3 are to be grouped?

4 A. That's right.

5 Q. And reminding the jury again, so when the speakers are  
6 receiving JoinGroup command, they're out playing music  
7 individually; correct?

8 A. In this example, yes.

9 Q. And just to be clear, now we're talking about the new  
10 design that you created; correct?

11 A. Yes.

12 Q. Okay. So from this point on when we see the slide say  
13 "Google's new design," we're talking about the new design that  
14 you created; is that okay?

15 A. That's right.

16 MR. PAK: So let's go to the next slide.

17 BY MR. PAK:

18 Q. What happens as soon as each of the speakers receive and  
19 process the JoinGroup command?

20 A. So when each speaker is processing the JoinGroup command,  
21 it calls a function called StopCurrentApp and that moves each  
22 speaker into the idle mode.

23 Q. And when it says "StopCurrentApp," are you just pausing  
24 the app?

25 A. No. The app is killed. It's torn down completely.

1 Q. And so if a music app for each of these speakers is killed  
2 or stopped by the code that you added, what happens in terms of  
3 the mode of operation?

4 A. It returns to the idle mode.

5 Q. Okay. Is that what you're showing here on this slide?

6 A. Yes.

7 MR. PAK: Let's go to the next slide.

8 BY MR. PAK:

9 Q. So just for the jury's benefit, we see some of your code  
10 already, but we saw the StopCurrentApp on the left; correct?

11 A. Yes.

12 Q. And what's the immediate next program instruction that is  
13 executed?

14 A. The next function that we call is AddGroup.

15 Q. And is this combination of StopCurrentApp and AddGroup  
16 executed together for each of the speakers that you're trying  
17 to add to the group?

18 A. Yes.

19 Q. Okay. And so what happens when AddGroup command is  
20 executed on each of these four speakers?

21 A. AddGroup sets up the structures in memory to represent the  
22 group for that device.

23 Q. And are the speakers still operating in idle mode at this  
24 time?

25 A. Yes.

1 Q. All right.

2 MR. PAK: Let's go to the next slide.

3 BY MR. PAK:

4 Q. And then we'll get into some more of the details around  
5 this, but at some point the user can launch or play music on  
6 all four speakers as a group; is that correct?

7 A. That's correct.

8 Q. And is that launch or invocation of a group occurring when  
9 the speaker is in standalone mode?

10 A. No.

11 Q. What mode of operation are all the speakers that you're  
12 adding to the group in when you're launching a group for music  
13 playback?

14 A. They would be in idle mode.

15 Q. So let's talk about that a little bit more.

16 MR. PAK: So let's go to the next slide.

17 BY MR. PAK:

18 Q. So when you power on one of these Google speakers, what is  
19 the first mode of operation for that speaker?

20 A. When you first power on a speaker, it would be in idle  
21 mode.

22 Q. Okay. Again, is there any type of configuration for music  
23 playback when a speaker is in idle mode?

24 A. No. It's not able to play music at that point.

25 MR. PAK: Let's go to the next slide.

1 **BY MR. PAK:**

2 **Q.** So we've seen these commands during this trial, but what  
3 is the launch command?

4 **A.** The launch command is a command that indicates that an app  
5 should be launched and it could be launched either on a single  
6 device or on a group.

7 **Q.** So what are you showing here with idle, mode of operation,  
8 the launch command causing the speaker to go into standalone  
9 mode?

10 **A.** So the device starts in idle mode. It receives a launch  
11 command that's targeted to the single device and that launches  
12 the app for that single device and that puts the device into  
13 standalone mode.

14 **Q.** Okay.

15 **MR. PAK:** Let's go to the next slide.

16 **BY MR. PAK:**

17 **Q.** Now we see the idle mode and the launch command, but this  
18 time we see the four speakers on the left. Do you see that?

19 **A.** Yes.

20 **Q.** So what happens if you are in idle mode and you execute  
21 the launch command for a group? What happens then?

22 **A.** So in this case you're starting in idle mode. The launch  
23 command would be sent to the leader of the group targeting the  
24 application to the group itself, and the leader would launch  
25 the app and tell the followers to also launch. And that would

1 put all the devices that are currently online into group mode.

2 Q. And the idle -- let me ask it this way: Are the speakers  
3 in idle mode when it -- when they receive the launch command or  
4 the invocation command to play music as a group?

5 A. In this example, yes.

6 MR. PAK: Let's go to the next slide.

7 BY MR. PAK:

8 Q. So in the Google's new design, can you ever go from group  
9 to standalone mode by launching?

10 A. No. It always has to go to idle mode first.

11 Q. And vice versa, in the Google's new design can you ever go  
12 from standalone mode to group by launching?

13 A. No. Again, it has to go to idle mode first.

14 MR. PAK: So let's go back -- let's go forward to the  
15 next slide.

16 BY MR. PAK:

17 Q. So what are you depicting here?

18 A. This is just showing that from idle mode you can go to  
19 either standalone or group mode.

20 Q. So from idle you can launch to standalone; correct?

21 A. Correct.

22 Q. And from idle you can launch to group; correct?

23 A. Correct.

24 Q. But you can never launch from standalone to group; is that  
25 correct?

1 A. That's correct.

2 Q. And is that true for all the new design products?

3 A. Yes.

4 MR. PAK: Now, Your Honor, we have a very brief video  
5 demonstration I'd like to play for the jury with Mr. MacKay.  
6 So the next slide.

7 THE COURT: All right. Just we'll do that.  
8 Everyone over there paying attention?

9 (Pause in proceedings.)

10 THE COURT: Anyone asleep over there?

11 (No response.)

12 THE COURT: Okay. Go ahead.

13 MR. PAK: All right.

14 BY MR. PAK:

15 Q. Let's take a look at the video on the left. What are you  
16 showing there?

17 A. So this shows the user is playing music on a Google Home  
18 hub standalone music.

19 MR. PAK: Okay. I'm going to ask Mr. Fisher to play  
20 it back again so we can focus on a few things here.

21 BY MR. PAK:

22 Q. So the user is going through the steps on the right of  
23 creating a group; is that correct?

24 A. Yes. They just did that.

25 Q. Okay. And then why did the screen go dark right before

1 the music played as a group in the new design?

2 A. That shows that the idle screen app was stopped and the  
3 device was completely not running anything and then group  
4 playback began.

5 Q. And then we see this picture of a rose after the screen  
6 went dark. What is that signifying?

7 A. That's the idle screen.

8 Q. Is it like a screen saver?

9 A. That's right.

10 Q. Okay. And then so after you kill the app that was playing  
11 the music individually, you go into idle mode, the screen goes  
12 dark, and now you're showing the screen saver. Is that an  
13 accurate description of what the video shows?

14 A. Yes.

15 Q. And then can you wait a little bit of time before you  
16 actually play music?

17 A. Sorry. What was the question?

18 Q. Can you wait some period of time before you start to play  
19 the music on the group?

20 A. After launching the app?

21 Q. Yes.

22 A. Yes.

23 Q. Okay. But the launch or the invocation, what mode of  
24 operation are all the new design products in when they receive  
25 and execute the launch command?

1 A. So when the app target towards the group is launched,  
2 there can be no other app running at that point so that device  
3 starts in idle mode before the app for the group can be  
4 launched.

5 Q. Did any other Google engineer help you write the code for  
6 the new design?

7 A. No.

8 Q. You wrote it yourself?

9 A. That's correct.

10 Q. Are you in this case -- we heard some testimony from  
11 Mr. Tomer Shekel. Do you recall that?

12 A. Yes.

13 Q. Was Mr. Shekel involved in the new design or any  
14 development of the old design for group technology?

15 A. Mr. Shekel was not involved in the new design and he  
16 didn't take part in any implementation or design of the old  
17 design.

18 Q. And are you aware of how many of Google's products  
19 received a new design for the speaker grouping technology  
20 generally?

21 A. I don't know.

22 Q. Okay. Has Google received any customer complaints as a  
23 result of this new design?

24 A. Not that I know of.

25 Q. Mr. MacKay, how long did it take you to implement the new



1 design where you added the StopCurrentApp code?

2 A. Less than a day.

3 Q. And how long did it take for that design change to be  
4 approved for release?

5 A. It was within a couple of days.

6 Q. So let's put this together for the jury.

7 MR. PAK: Go to the next slide.

8 (Pause in proceedings.)

9 BY MR. PAK:

10 Q. This time we're focusing on Google's new design. Are you  
11 with me?

12 A. Yes.

13 Q. So on the left-hand side we have the downstairs group;  
14 correct?

15 A. Yes.

16 Q. And that's on the Home app UI?

17 A. That's right.

18 Q. And then we -- in the middle we have the Google speakers.  
19 Do you see that?

20 A. Yes.

21 Q. And on the right we're showing the modes of operation for  
22 those speakers; correct?

23 A. That's right.

24 Q. So what are you showing here with the music coming out of  
25 that speaker in standalone mode?

1 A. That shows that the Google Home device is currently  
2 playing music in standalone mode.

3 Q. All right.

4 MR. PAK: Let's go to the next.

5 BY MR. PAK:

6 Q. So the user is pushing "Save to the downstairs group." Do  
7 you see that?

8 A. Yes.

9 Q. And that downstairs group in this example would include  
10 that speaker that was playing music individually; correct?

11 A. Yes.

12 MR. PAK: Let's go to the next slide.

13 BY MR. PAK:

14 Q. So we see that JoinGroup command that's being sent from  
15 the Home app to that speaker. Do you see that?

16 A. Yes.

17 Q. It's also being sent to a device on the bottom. Do you  
18 see that?

19 A. That's right.

20 Q. Can you explain to the jury what type of device is that?

21 A. That's a Nest Mini speaker.

22 Q. Okay. So you have the Nest speaker on top and you have  
23 the mini Nest speaker on the bottom. Do you see that?

24 A. That's right.

25 Q. So the user wants to put both of them into a group for

1 downstairs; is that right?

2 A. Yes.

3 Q. And both of these speakers will receive the JoinGroup  
4 command; correct?

5 A. That's correct.

6 Q. And at this point in time what mode of operation is the  
7 top speaker in?

8 A. It's in standalone mode.

9 Q. And what about the one on the bottom?

10 A. It's in idle mode.

11 Q. Okay.

12 MR. PAK: Let's go to the next.

13 BY MR. PAK:

14 Q. So what happens as we saw with the StopCurrentApp command?

15 A. So when StopCurrentApp is called on the Google Home  
16 device, it will kill the standalone app and return that device  
17 to idle mode.

18 Q. And what about the device on the bottom that was already  
19 in idle mode when it got the StopCurrentApp?

20 A. It would remain in idle mode.

21 MR. PAK: Let's go to the next slide.

22 THE COURT: Wait, before you leave that, keep that.

23 MR. PAK: Sure.

24 THE COURT: Whenever the StopCurrentApp line plays,  
25 you say that it returns to idle mode; but does that mean that

1 it just stops playback or does it actually stop the software  
2 some from executing somehow? Maybe I'm not saying that quite  
3 right, but maybe does it do anything more than just stop the  
4 playback?

5 **THE WITNESS:** Yes, Your Honor.

6 **THE COURT:** What does it do?

7 **THE WITNESS:** It stops the software that's running the  
8 app. So, for example, your Spotify app or YouTube music app  
9 would be stopped completely. The code would stop running.

10 **THE COURT:** Let me think about that.

11 (Pause in proceedings.)

12 **MR. PAK:** Your Honor, if I could just follow-up.

13 **THE COURT:** Okay. Okay. All right. Thank you. Go  
14 ahead.

15 **BY MR. PAK:**

16 **Q.** When you say "stop the software that's running to play  
17 music," you mentioned earlier that it kills the app, can you  
18 explain to the jury what's going on when you execute  
19 StopCurrentApp?

20 **A.** It stops the app from -- it tears down the app completely  
21 and removes it from memory. So it's kind of like closing your  
22 browser window.

23 **Q.** At that point in time is the app even capable of being  
24 operated on that device at that point in time?

25 **A.** No. It's not running at all.

1           **MR. PAK:** I hope that --

2           **THE COURT:** Thank you, yes.

3           **MR. PAK:** All right. With that, let's go to the next  
4 slide.

5 **BY MR. PAK:**

6 **Q.** So then we saw the AddGroup G command. Do you see that?

7 **A.** Yes.

8 **Q.** And is that sent to both devices for the downstairs group?

9 **A.** Both devices would execute that as part of handling the  
10 JoinGroup command.

11 **Q.** What mode of operation are these two speakers in when they  
12 get the AddGroup command?

13 **A.** They would both be in idle mode.

14           **MR. PAK:** Let's go to the next slide.

15 **BY MR. PAK:**

16 **Q.** And there could be a period of time -- and then go to the  
17 next slide -- the user is now selecting to play music on the  
18 downstairs group. Do you see that?

19 **A.** Yes.

20 **Q.** So this would launch a different app to play music as a  
21 group; is that correct?

22 **A.** That's correct.

23 **Q.** Okay. So here, why do you only show the launch command  
24 going to the top speaker?

25 **A.** The launch command is only sent to the elected leader of

1 the group.

2 Q. And is that referring back to that continuous leadership  
3 election process as part of your ACA technology?

4 A. That's correct.

5 Q. Okay. So the top speaker is the leader at that moment in  
6 time, but it could have also been the other mini speaker at any  
7 other given point in time; is that correct?

8 A. Yes, it could have been either.

9 Q. So here the top speaker gets the launch command. What  
10 mode of operation is that top speaker in when it receives the  
11 launch command?

12 A. It's in idle mode.

13 Q. And what's the mode of operation on the bottom speaker  
14 when the top speaker receives the launch command?

15 A. It's also in idle mode.

16 MR. PAK: Let's go to the next slide.

17 BY MR. PAK:

18 Q. And at some point the user can play music as a group on  
19 both of these speakers; is that correct?

20 A. Yes. I think that was indicated by sending the launch  
21 command.

22 Q. Okay. So in Google's design for the new design, when you  
23 send the launch, does it also play music?

24 A. No.

25 Q. Okay. So then how is the music playback done in your

1 design?

2 **A.** After the app is launched, there's an additional step to  
3 actually start playback.

4 **Q.** Okay. So when you start that additional -- when you  
5 perform that additional step to start playing music as a group  
6 on these two set of speakers, at that point what is the mode of  
7 operation for these two speakers?

8 **A.** It would be in group mode.

9 **Q.** Just now we heard about some usage metrics. Based on your  
10 understanding of the usage metrics for the overlapping speaker  
11 groups, if it exists, do you believe that creation of  
12 overlapping speaker groups is a popular feature among Google  
13 users?

14 **A.** I don't think so.

15 **Q.** Okay. And why is that?

16 **A.** The total number of devices that are even added to a  
17 single group is single-digit percentages. I don't know the  
18 exact numbers but it's very small.

19 **Q.** And do you ever use or are you aware of anyone at Google  
20 ever using the speaker grouping data for advertisements or  
21 anything like that?

22 **A.** No.

23 **Q.** Okay. What is that data used for to your understanding?

24 **A.** It's used to determine how much the feature is used.

25 **Q.** I'm going to ask you for a few questions about Cast for

1 Audio.

2 A. Okay.

3 Q. Just to set the stage for the jury, is Cast for Audio the  
4 same thing as the Chromecast Audio dongle that we saw?

5 A. No.

6 Q. Okay.

7 MR. PAK: Now, Mr. Fisher, can you pull up TX48?

8 BY MR. PAK:

9 Q. The jury has seen this. This is an e-mail that was  
10 presented during your video deposition.

11 And just to set context, do you see that this is an e-mail  
12 from something called eurekafooddiscuss@google.com?

13 A. Yes.

14 Q. Can you tell us what is that e-mail alias at Google?

15 A. This is a mailing list for a large group of Google  
16 employees to talk about the dog food program.

17 Q. What does it mean to eat your own dog food in the  
18 industry?

19 A. This is where you use your own products. It's sort of a  
20 way to get feedback internally.

21 Q. And I believe you had testified in your video deposition  
22 that it was March of 2015 for this e-mail, but can you identify  
23 for the record what is the actual date for this e-mail?

24 A. It looks like it's -- the bottom one is May 20th, 2015.

25 MR. PAK: Let's take a look at that. Great.



1 **BY MR. PAK:**

2 **Q.** And then at the top, what is the date?

3 **A.** There's another date that's May 21st of 2015.

4 **Q.** Mr. MacKay, did you ever respond to this e-mail?

5 **A.** No.

6 **Q.** Do you even remember reading this e-mail?

7 **A.** No.

8 **Q.** Do you have a general practice with dealing with these  
9 types of dog food e-mails that are sent out?

10 **A.** I have a filter set up on my e-mail to ignore all dog food  
11 discuss e-mails.

12 **Q.** Okay. Why is that?

13 **A.** There's a lot of e-mail traffic on that list and it's not  
14 very valuable for my job.

15 **Q.** So just to set context, we're talking about an e-mail  
16 chain in May of 2015; correct?

17 **A.** Correct.

18 **Q.** Specifically May 20th and May 21st; correct?

19 **A.** That's correct.

20 **Q.** All right. And this is TX48.

21 I want to go back to your development chronology, which is  
22 the first slide.

23 Can you remind us again, when had you written the initial  
24 source code for the grouping?

25 **A.** The first source code I wrote was on March 18th of 2015.

1 Q. When was that source code approved?

2 A. March 26th of 2015.

3 Q. And when did you write the design doc that laid out all  
4 the options including the one you adopted, the ACA option?

5 A. March 30th of 2015.

6 Q. And when did you write the code for implementing the  
7 JoinGroup functionality that is accused in this case?

8 A. May 8th of 2015.

9 Q. So yes or no, did you write the source code for the  
10 JoinGroup functionality before May 20th and 21st of 2015?

11 A. Yes.

12 Q. Mr. MacKay, at the time you were developing Google speaker  
13 grouping technology, what did you know about Sonos?

14 A. I think I knew they existed. I think I'd heard the name  
15 before.

16 Q. And what Sonos products, if any, had you used at that  
17 point?

18 A. None.

19 Q. Are you even very familiar with any of Sonos' products?

20 A. No.

21 Q. Mr. MacKay, can you please tell the jury when you created  
22 the speaker grouping technology for code Google, did you take  
23 anything from Sonos?

24 A. No. I took nothing from Sonos. It was all my own work.

25 Q. At any time throughout your tenure at Google, have you

1 ever taken anything from Sonos?

2 **A.** No.

3 **MR. PAK:** Thank you, Your Honor. I pass the witness.

4 **THE COURT:** Thank you.

5 Cross-examination.

6 **MR. SMITH:** Good morning, everyone. I'm Dan Smith on  
7 behalf of Sonos.

8 Your Honor, may I approach the witness with the binder?

9 **THE COURT:** Yes, please. Go ahead.

10 (Pause in proceedings.)

11 **CROSS-EXAMINATION**

12 **BY MR. SMITH:**

13 **Q.** Good morning, Mr. MacKay.

14 **A.** Good morning, Mr. Smith.

15 **Q.** Mr. MacKay, just to start, you're not providing an opinion  
16 regarding whether Google infringes Sonos' patents; correct?

17 **A.** That's correct.

18 **MR. SMITH:** And, John, could you please pull up it's  
19 Exhibit TX0036?

20 (Pause in proceedings.)

21 **BY MR. SMITH:**

22 **Q.** And, Mr. MacKay, it's also in the binder if you'd rather  
23 look at the paper copy.

24 (Pause in proceedings.)

25 \\\

1 **BY MR. SMITH:**

2 **Q.** Mr. MacKay, this is a Google web page that describes how  
3 to create and manage Google speaker groups; correct?

4 **A.** Yes.

5 **Q.** And as we heard in your earlier testimony, you sometimes  
6 refer to these groups as static groups; is that correct?

7 **A.** That's correct.

8 **Q.** And do you see the subheader titled "Create an Audio  
9 Group" under step 1?

10 **A.** Yes.

11 **Q.** And you agree that this is an accurate description of the  
12 process for creating a new static speaker group using the  
13 Google Home app; correct?

14 **A.** I think so. I haven't actually done it in a while.

15 **Q.** Okay. But you think it is an accurate description;  
16 correct?

17 **A.** Yes.

18 **Q.** And that would be a description for creating a new speaker  
19 group for both the prior version of Google's products and the  
20 new version of Google's products; is that correct?

21 **A.** Yes.

22 **Q.** And, Mr. MacKay, a Google audio player that supports  
23 static groups can be a member of multiple static groups;  
24 correct?

25 **A.** That's correct.

1 Q. And there's no limit to the number of static groups that a  
2 given player can be in?

3 A. I think it's limited to 256.

4 Q. Okay. So a single -- a single Google player can be in  
5 200 -- did you say 56?

6 A. That's right.

7 Q. Okay. So 256 different groups?

8 A. Yes.

9 Q. And, Mr. MacKay, you would characterize a static group as  
10 something that the user configures and it's saved persistently;  
11 correct?

12 A. The group membership we don't store persistently. The  
13 system does store persistently the group ID and the group name  
14 on each device.

15 MR. SMITH: John, could you please pull up  
16 Mr. MacKay's dep testimony from May 10th, 2022, at page 117,  
17 lines 16 through 20? And we can actually go with the video if  
18 you have it.

19 THE COURT: All right. Go ahead and just roll the  
20 tape.

21 (Video was played but not reported.)

22 BY MR. SMITH:

23 Q. So, Mr. MacKay, that's the testimony you gave during your  
24 deposition; right?

25 A. That's right.

1 Q. And during that deposition, during that testimony we just  
2 saw, you didn't say that it only saves some of the information  
3 persistently; correct?

4 A. That's correct, I didn't say that.

5 Q. Now, Mr. MacKay, did I hear you right in your direct  
6 testimony? Did you say that the players in the group only  
7 store the ID and name of the group?

8 A. They only persistently store the name and ID of the group,  
9 that's correct.

10 Q. But, Mr. MacKay, a player in a speaker group that is  
11 elected as the leader of the group stores information about the  
12 followers that are currently connected to it; correct?

13 A. In temporary memory, correct.

14 MR. SMITH: John, could we go on ahead and pull up  
15 Mr. MacKay's testimony from May 10th, 2022, at page 95,  
16 lines 13 through 20? And we can go with the video again if you  
17 have it.

18 (Pause in proceedings.)

19 (Video was played but not reported.)

20 BY MR. SMITH:

21 Q. And, Mr. MacKay, if all of the followers are online and  
22 available, then the leader of the group will store information  
23 about all the followers in the group; correct?

24 A. The leader would have no knowledge about whether all the  
25 devices are online and connected.

1 Q. I understand that it may not have knowledge whether they  
2 are, but if all of the followers are online and connected the  
3 leader will store information about all of the followers in the  
4 group; correct?

5 A. It will store in temporary memory information about all of  
6 the followers that are connected.

7 Q. Mr. MacKay, you would agree that a newly created static  
8 speaker group is not automatically launched at the time it is  
9 created; correct?

10 A. Correct.

11 Q. So the act of tapping "Save" on the Google Home app, that  
12 does not cause a new static speaker group to be launched;  
13 correct?

14 A. Correct.

15 Q. So after a new static speaker group has been created and  
16 saved, the user can launch that group whenever they desire;  
17 correct?

18 A. It requires that the group leader has been elected first.

19 Q. Okay. Assuming that's the case, though, they can then  
20 launch the group whenever they would like; correct.

21 A. That's correct.

22 Q. So, for example, they could launch the save group an hour  
23 later, two days later, or three weeks later; is that correct?

24 A. Yes. Well, as long as one of the devices in the group is  
25 online.

1 Q. Mr. MacKay, I want to switch gears a little bit and talk  
2 about what you were referring to as idle mode.

3 MR. SMITH: John, could you please pull up PDX11.3 and  
4 put that on the screen?

5 (Pause in proceedings.)

6 BY MR. SMITH:

7 Q. Mr. MacKay, do you see the screenshot on this slide?

8 A. Yes.

9 Q. And based on your understanding of the Google Home app,  
10 does this screenshot accurately reflect the main screen of the  
11 Google Home app for Android?

12 A. Yes, I think so.

13 Q. And so as you can see here, the user system has three  
14 Google speakers. Do you see that?

15 A. Yes.

16 Q. And none of the speakers are in a group; correct? There's  
17 no group shown there?

18 A. I don't see a group on the screen.

19 Q. And none of the speakers are actively playing audio;  
20 correct?

21 A. That's correct.

22 Q. And so these three speakers are in what you refer to as  
23 idle mode; correct?

24 A. That's correct.

25 Q. So if a user clicks on the living room speaker --



1           **MR. SMITH:** John, if you can go on ahead and -- thank  
2 you.

3 **BY MR. SMITH:**

4 **Q.** So if a user clicks on the living room speaker in the  
5 middle, a volume slider pops up. Do you see that?

6 **A.** Yes.

7 **Q.** And that volume slider allows a user to adjust the audio  
8 volume level for the living room speaker; correct?

9 **A.** That's correct.

10           **MR. SMITH:** And, John, could you go on ahead and show  
11 that?

12                               (Pause in proceedings.)

13 **BY MR. SMITH:**

14 **Q.** So in this scenario, Mr. MacKay, when a user does decide  
15 to play audio on a living room speaker, the audio will be  
16 output at the volume level set by the user; correct?

17 **A.** Correct.

18 **Q.** And in this case it would be output at the 40 percent  
19 level that the user set it at; is that correct?

20 **A.** Yes.

21 **Q.** And so even though the living room speaker is in what you  
22 refer to as idle mode, the speaker is still operating; correct?

23 **A.** There's still code running on the device.

24 **Q.** It's plugged in; right?

25 **A.** Correct.

1 Q. And it's powered on?

2 A. Yes.

3 Q. And the speaker's operating system is running; correct?

4 A. That's correct.

5 Q. And the speaker is still available for selection by a  
6 user; correct?

7 A. Correct.

8 Q. And the speaker is operating in a mode in which its audio  
9 volume level can be adjusted; correct?

10 A. Yes, you can adjust the audio volume level.

11 MR. SMITH: Okay, John, we can go on ahead and take  
12 that down. Thank you.

13 BY MR. SMITH:

14 Q. All right. Mr. MacKay, I want to switch gears again and  
15 talk about the new Google design.

16 A. Okay.

17 Q. And so the new version of Google's audio player still  
18 allows for static speaker groups; correct?

19 A. That's correct.

20 Q. But for the new design you added to the source code a call  
21 to a function named StopCurrentApp; correct?

22 A. That's right.

23 Q. And with respect to the issues in this case, the addition  
24 of the call to the StopCurrentApp function is the only change  
25 you made to the new version of Google's products; correct?

1     **A.**    Yes, that's correct.

2     **Q.**    And so you added the StopCurrentApp function to Google's  
3    audio players, but you did not make any changes to the Google  
4    Home app that runs on the controller; correct?

5     **A.**    That's correct.

6           **MR. SMITH:**   John, could you go on ahead and pull up  
7    DDX7.1A from Mr. MacKay's demonstratives?

8                               (Pause in proceedings.)

9           **MR. SMITH:**   Oh, 7.1A.

10                              (Pause in proceedings.)

11    **BY MR. SMITH:**

12    **Q.**    So, Mr. MacKay, on direct examination you talked a little  
13    bit about this AddGroup function; right?

14    **A.**    Yes.

15    **Q.**    Just to be clear for the jury, the AddGroup function was  
16    already in the firmware for the prior version of Google's  
17    products; right?

18    **A.**    That's right.

19    **Q.**    And for the new version of Google's audio players, you did  
20    not make any changes to the AddGroup function; right?

21    **A.**    That's right.

22           **MR. SMITH:**   John, you can go on ahead and take that  
23    down now.

24    **BY MR. SMITH:**

25    **Q.**    So, Mr. MacKay, with respect to the StopCurrentApp

1 function, that function causes a player that's actively playing  
2 audio to stop playing audio when it's added to a new static  
3 group; is that correct?

4 **A.** It not only stops playing audio, it actually kills the  
5 entire app.

6 **Q.** But by killing the app, it does stop the playback of  
7 audio; right?

8 **A.** That's right.

9 **Q.** And the StopCurrentApp function does not cause a new  
10 static speaker group to be launched; correct?

11 **A.** That's correct.

12 **MR. SMITH:** John, could you pull up PDX11.4?

13 (Pause in proceedings.)

14 **BY MR. SMITH:**

15 **Q.** Mr. MacKay, do you see these screenshots here?

16 **A.** I see them.

17 **Q.** And setting aside the annotations that have been added, do  
18 these screenshots accurately reflect the screens for the Google  
19 Home app for Android?

20 **A.** I think so. Like I said, I haven't used it in a while so  
21 I'm not sure exactly, but it looks generally correct.

22 **Q.** And, Mr. MacKay, this demonstrative attempts to show a  
23 user creating a new speaker group named morning that includes  
24 both the attic speaker and the den speaker. Do you see that?

25 **A.** It looks like on the right-hand side there's already a

1 group called morning. Sorry. I'm not sure which part I'm  
2 supposed to be looking at.

3 Q. No problem. Sorry for the confusion.

4 So let me start on the left. So on the left we have the  
5 before the creation of the group it shows the attic and the den  
6 speaker there. Do you see that?

7 A. Yes.

8 Q. And then in that middle screenshot you see a user is now  
9 starting to create the group and they're selecting the attic  
10 speaker and the den speaker. Do you see that?

11 A. Yes.

12 Q. And after that, they would hit the "Next" button and then  
13 press "Save"; right?

14 A. Okay.

15 Q. Okay. And then in the third screenshot you see, now after  
16 that speaker group has been created, you see that the morning  
17 group is showing up on the bottom there. Do you see that?

18 A. Yes.

19 Q. Okay. Now, Mr. MacKay, looking at these screenshots, are  
20 you able to tell me whether or not the attic and den speaker  
21 are running the new firmware version with the StopCurrentApp  
22 function?

23 A. No.

24 Q. And I will represent to you that both the den and attic  
25 speaker are running the new firmware with the StopCurrentApp

1 function for my next question. Okay?

2 A. Okay.

3 Q. All right. So going back to what we just spoke about, on  
4 the first two screenshots on the left, the attic and the den  
5 speakers are not playing any audio at the time they're added to  
6 the speaker group named morning. Do you see that?

7 A. Yes.

8 Q. And then in the third screenshot on the right, the attic  
9 and den speakers are still not playing any audio after they are  
10 added to the speaker group named morning. Do you see that?

11 A. Yes.

12 Q. Okay. So in a scenario like this, if there are two Google  
13 players neither of which are engaging in active playback of  
14 audio and a user creates a new static speaker group that  
15 includes those two players, the StopCurrentApp function will  
16 not cause any change to the operational behavior of the player;  
17 is that correct?

18 A. It does run the code, but it wouldn't have any user  
19 visible changes I guess I would say.

20 Q. Okay. And it wouldn't cause any change to the operational  
21 behavior of the player; correct?

22 A. Like I said, it runs the code as it's calling the  
23 StopCurrentApp function; but after that, there would be no  
24 change.

25 Q. Yeah. When it calls the code, there's nothing to stop

1 here, right, because there's no music being played?

2 **JUROR JOHNSON:** Your Honor?

3 **MR. SMITH:** Your Honor?

4 **THE COURT:** Oh, I'm sorry.

5 **JUROR JOHNSON:** Do you mind if we go on a break right  
6 now?

7 **THE COURT:** I can't hear you.

8 **JUROR JOHNSON:** Do you mind if we go on a break right  
9 now?

10 **THE COURT:** All right. We're going to take a break  
11 right now. 15 minutes. Remember the admonition.

12 **THE CLERK:** All rise for the jury.

13 (Proceedings were heard outside the presence of the jury:)

14 **THE COURT:** All right. Have a seat.  
15 We'll -- anything for the Judge before we break?

16 **MR. PAK:** No, Your Honor.

17 **THE COURT:** All right. We'll take our break as well.  
18 Thanks.

19 **THE CLERK:** Court is in recess.

20 (Recess taken at 10:18 a.m.)

21 (Proceedings resumed at 10:29 a.m.)

22 (Proceedings were heard out of the presence of the jury:)

23 **THE CLERK:** Come to order.

24 **THE COURT:** Bring them in.

25 **THE CLERK:** All rise for the jury.

**MACKAY - REDIRECT / PAK**

1 (Proceedings were heard in the presence of the jury:)

2 **THE COURT:** Thank you. Be seated.

3 Mr. Smith, you may continue.

4 **MR. SMITH:** John, could we pull back up PDX11.4.

5 (Pause in proceedings.)

6 **BY MR. SMITH:**

7 **Q.** So, Mr. MacKay, before we took a break there, I had asked  
8 you a question, I'm going to ask it again, and that is: In a  
9 scenario like the one we're showing here, if there are two  
10 Google players neither of which are engaging in active playback  
11 of audio and the user creates a new static speaker group that  
12 includes those two players, the StopCurrentApp function will  
13 not cause any change to the operational behavior of the player;  
14 correct?

15 **A.** They would stay in idle mode. That's right.

16 **MR. SMITH:** John, could you go on ahead and play the  
17 MacKay dep transcript from January 25th, 2023, page 55,  
18 lines 19 through 24?

19 (Video was played but not reported.)

20 **MR. SMITH:** Okay. No further questions, Your Honor.

21 **THE COURT:** All right. Mr. Pak, your turn.

22 **MR. PAK:** Now, Mr. Fisher, let's pull up TX36.

23 (Pause in proceedings.)

24 **REDIRECT EXAMINATION**

25 \\\



**MACKAY - REDIRECT / PAK**

1 **BY MR. PAK:**

2 **Q.** So you remember, Mr. MacKay, that counsel asked you a few  
3 questions about this document?

4 **A.** Yes.

5 **Q.** And this is just the user manual or home page for using  
6 the speaker devices; is that correct?

7 **A.** That's right.

8 **Q.** Does this document try to describe the actual workings of  
9 your source code?

10 **A.** No.

11 **Q.** And in your -- you were shown some deposition testimony  
12 earlier in examination. Did any of that deposition testimony  
13 conflict in any way with what you've been describing to us in  
14 terms of the source code operation?

15 **A.** No.

16 **Q.** And did you accurately describe to the jury the source  
17 code that you wrote for the Google designs?

18 **A.** Yes, I did.

19 **Q.** And when you were being asked what is persistently stored,  
20 did the lawyer ask you to exactly describe which pieces of data  
21 are being stored?

22 **A.** No, he did not.

23 **Q.** And when you were mentioning in your deposition testimony  
24 that the leader currently has the information about the other  
25 speakers in the group, you used the word "currently." Can you

1 explain to the jury what you mean by that?

2 **A.** So the leader maintains information about the set of other  
3 devices in the group that are currently connected to it.

4 **Q.** Does the leader ever maintain information about any prior  
5 history of grouping or membership information?

6 **A.** No. Only the current devices.

7 **Q.** And, finally --

8 **MR. PAK:** Mr. Jay, I don't have your cross  
9 demonstrative, but if you can pull up PDX11.4.

10 **BY MR. PAK:**

11 **Q.** You were asked some questions about this demonstrative;  
12 correct?

13 **A.** Yes.

14 **Q.** And I -- based on the exchange, I understood that the  
15 attic speaker and the den speaker would already be in idle  
16 mode; correct?

17 **A.** Yes.

18 **Q.** So at that point are any of these speakers on the left  
19 even configured to play music at all?

20 **A.** No.

21 **Q.** So if you're trying to stop the app that plays the music  
22 using your current StopCurrentApp command, there's nothing to  
23 kill; correct?

24 **A.** That's right.

25 **MR. PAK:** All right. Thank you, Your Honor. I pass

1 the witness.

2 **THE COURT:** I have some questions.

3 One of the questions that was you can adjust the volume,  
4 and maybe I misunderstood the scenario; but if the app has been  
5 killed, how can you adjust the volume and still listen to the  
6 app by -- you see the question? It sounded like you -- you had  
7 told us that Spotify would be killed and not giving us any  
8 feed; but if you're adjusting the volume listening to Spotify,  
9 then that would indicate that it's not being killed. And so  
10 I -- me and maybe the jury too misunderstood or I  
11 misunderstood. So explain that part again.

12 **THE WITNESS:** Yes, Your Honor.

13 Even when there's no music playing, you can still adjust  
14 the volume of the device so that later when you play out music,  
15 the music will play at that new volume that you've set.

16 **THE COURT:** Well, but what app is giving you the feed  
17 for the music?

18 **THE WITNESS:** There would be no music in this case.

19 **THE COURT:** Well, what is -- you're listening to  
20 something, right, coming out of the speaker so you can adjust  
21 it?

22 **THE WITNESS:** I think the speaker makes a little boop  
23 noise.

24 **THE COURT:** A what?

25 **THE WITNESS:** A little boop noise. It goes boop.

1           **THE COURT:** So if there's no Spotify being played, it  
2 makes the boop noise and that's what you adjust the music --  
3 I'm sorry -- adjust the volume by?

4           **THE WITNESS:** Yes, Your Honor. When you adjust the  
5 volume and you let go, it makes a little -- a little boop  
6 noise.

7           **THE COURT:** But as you -- as you increase it with the  
8 circle, I was under the impression that you were telling the  
9 jury earlier that you actually heard music coming out of the  
10 speaker.

11           **THE WITNESS:** No, Your Honor.

12                           (Pause in proceedings.)

13           **THE COURT:** All right. Different question.

14           If we went and looked at the software and your commentary  
15 on it, would we find the word "idle" mode anywhere?

16           **THE WITNESS:** We do have idle in the software in the  
17 source code.

18           **THE COURT:** Do you have idle mode?

19           **THE WITNESS:** I don't know if we call it idle mode  
20 specifically anywhere in the source code.

21           **THE COURT:** All right. Any more questions, Mr. Pak?

22           **MR. PAK:** No, Your Honor.

23           **THE COURT:** All right. Any more questions by  
24 Mr. Smith?

25           **MR. SMITH:** Yes. Just one question, Your Honor.

RECROSS-EXAMINATION

**BY MR. SMITH:**

**Q.** So, Mr. MacKay, you mentioned that the StopCurrentApp function and I think you've been referring to it as kills the currently running app; is that correct?

**A.** Yes.

**Q.** Okay. But it doesn't delete the app from the player; correct?

**A.** The app is a Java script app so once the tab is -- it's just like closing a tab in your browser. Once it's removed from memory, it's gone. It's not on the player anymore.

**Q.** You don't have to reinstall that app; correct?

**A.** The launch command essentially downloads the app from the internet again and loads up the tab in the browser is the same idea.

**MR. SMITH:** No further questions, Your Honor.

**THE COURT:** Wait a minute.

So I'm not an expert on this, in fact, I don't use much, but I would assume that if you were to download Spotify off the Internet, it would take some time.

**THE WITNESS:** Yes, Your Honor.

**THE COURT:** How long would that take?

**THE WITNESS:** It takes a few seconds. It's not downloading an app. It's more like opening a web page.

**THE COURT:** Okay. Anything more?

1           **MR. PAK:** No, Your Honor.

2           **THE COURT:** All right. You may step down, Mr. MacKay.  
3 Thank you.

4                               (Witness excused.)

5           **THE COURT:** Next witness.

6           **THE WITNESS:** Thank you, Your Honor.

7           **MR. PAK:** Thank you, Your Honor.

8           We're going to be calling Mr. Tavis Maclellan, another  
9 Google engineer.

10          And I'd like to actually introduce to the jury a critical  
11 member of our team, Mr. Jason Williams, who will be conducting  
12 the examination of Mr. Maclellan.

13          **THE COURT:** Say his name again please.

14          **MR. PAK:** Jason Williams -- oh, Tavis Maclellan.

15          **THE COURT:** No, no. Jason Williams.

16          All right. And who is the witness going to be?

17          **MR. PAK:** Tavis Maclellan.

18          **THE COURT:** Maclellan?

19          **MR. PAK:** M-A-C-L-E-L-L-A-N, I believe.

20          **THE CLERK:** May the witness approach the witness  
21 stand?

22          **THE COURT:** All right. So, Mr. Williams, you're --

23          **THE CLERK:** Please stand and raise your right hand.

24          \\

25          \\

1                    TAVIS ALEXANDER MACLELLAN,

2       called as a witness for the Defendant, having been duly sworn,  
3       testified as follows:

4                    **THE CLERK:** Please be seated.

5                    Speak directly into the microphone. State your full name  
6       for the record and spell your name.

7                    **THE WITNESS:** My full name is Tavis Alexander  
8       Maclellan. First name is T-A-V-I-S; middle name  
9       A-L-E-X-A-N-D-E-R; last name Maclellan, M-A-C-L-E-L-L-A-N.

10                   **THE COURT:** M or N?

11                   **THE WITNESS:** The final letter is N.

12                   **THE COURT:** Like Maclellan. Okay. I got it.  
13       Williams; right?

14                   **MR. WILLIAMS:** Correct.

15                   **THE COURT:** Mr. Williams, your turn.

16                   **MR. WILLIAMS:** Thank you, Your Honor.

17                   **DIRECT EXAMINATION**

18       **BY MR. WILLIAMS:**

19       **Q.** Good morning, Mr. Maclellan. Thank you for being here  
20       today.

21                   Can you please state your name for the record and  
22       introduce yourself to the jury?

23       **A.** Sure. My name is Tavis Maclellan. I've been -- I am a  
24       software engineer at Google. I currently live in San Ramon,  
25       California. I've been married for about three years now. We

1 did a COVID wedding.

2 You know, I like to hike. I like to go out and about. I  
3 played soccer competitively, and I've been here in the Bay Area  
4 for about nine years now.

5 **Q.** Thank you.

6 And can you please summarize your educational background?

7 **A.** I graduated from Auburn University in 2014. I got a  
8 bachelor's of computer science.

9 **Q.** And why computer science?

10 **A.** I think as far back as middle school my dad kind of was  
11 into computing doing some light programming, he got me hooked  
12 onto it and so I've been doing it for a very long time.

13 **THE COURT:** May I suggest you adjust the mic so it  
14 catches your voice better?

15 **THE WITNESS:** Sure. Is this much better?

16 **THE COURT:** That's much better. Yes, much better.

17 **THE WITNESS:** Thank you.

18 **BY MR. WILLIAMS:**

19 **Q.** Sorry. Go ahead.

20 **A.** And so I've always been interested with computers and  
21 specifically building cool, interesting technologies that can  
22 help people.

23 **Q.** And what did you do after you graduated college?

24 **A.** I moved here into the Bay Area in 2014 right after I  
25 graduated, and I started working for Google.



1 Q. And what initially attracted you to join Google?

2 A. So during college, I had a very good friend who actually  
3 got an internship at Google, and so he would tell me all the  
4 cool stuff he was working on, the people he was working with,  
5 and how much he had learned. And so we kind of agreed that  
6 when we graduated, we would both apply to Google and see who  
7 would get in first. I did.

8 And so that was the reason I applied, but Google is a  
9 company I was also very interested in. I used their products  
10 every day, and so I was very intellectually interested as an  
11 engineer, what cool things could I work on, and I felt that it  
12 would be a very good place to start my career.

13 Q. And what is your current title?

14 A. My current title at Google is staff software engineer.

15 Q. And can you please describe your current job  
16 responsibilities?

17 A. I currently work on the Nest Smart Home team. So  
18 generally I work on all the communication protocols that allow  
19 all the devices, all the smart home devices in your home, such  
20 as thermostats, speakers, smart home TVs, all of those to  
21 communicate to allow the smart home to be truly smart.

22 Q. And can you please tell us about any experiences you've  
23 had with Nest devices?

24 A. So I use my -- in my home I have a Google Home device. I  
25 use it every day for listening to music, setting reminders,

1 general Google assistance stuff. Up until about 2019 I only  
2 used it for those -- I only used it for media; but in 2019, my  
3 wife was actually in a bicycle accident and so she was stuck in  
4 a wheelchair for several months as well as she couldn't look at  
5 computer screens on her phone or on her laptop; and so during  
6 that time, we started using the device to set reminders, ask  
7 for directions to the clinic. And so at that point I started  
8 engaging with it, the full suite of functionality that the  
9 assistant allows.

10 Q. And is your wife okay now?

11 A. Yeah, she's doing much better. Thank you.

12 Q. And you've been at Google for over eight years. Why have  
13 you stayed at the company?

14 A. I would say the primary reason is that I really enjoy the  
15 team that I work on. When I joined Google in 2014 on the  
16 Chromecast team, we were a small team of about 20 engineers,  
17 and so it's kind of a tight-knit family. And I really enjoyed  
18 the people I worked with. I had great mentors who taught me a  
19 lot, and so I've stayed at the company mainly to stay with that  
20 team as we have grown to do Google Home, the home hub devices  
21 as we've grown.

22 Why I stay at Google is that I have a lot of faith in the  
23 company I think that solves a lot of hard problems that can  
24 have really large impact on users.

25 THE COURT: I must say, Mr. Williams, the witness is

1 giving like some kind of "Come to Jesus" testimonial for why  
2 Google is the greatest company in the world.

3 Now, I could give Sonos the same opportunity to do the  
4 same kind of thing, and I think within reason I have allowed  
5 that, but this is too much. The issue in this case is  
6 infringement and/or whether the patents are valid and why  
7 Google is the greatest company to work for in the world and  
8 this is irrelevant.

9 **MR. WILLIAMS:** Okay. Thank you, Your Honor.

10 **THE COURT:** So, please, let's go get to the issues  
11 that the jury has got to decide.

12 **BY MR. WILLIAMS:**

13 **Q.** Mr. Maclellan, can you please tell the jury a bit about  
14 the technology that you were focused on when you first joined  
15 Google?

16 **A.** Sure. When I first -- when I first joined Google in 2014,  
17 I joined the Chromecast team, and I was primarily focused on  
18 the discoverability aspect of our device. This allows the  
19 phone to discover our devices to then begin playing media on  
20 them. The first major project I worked on after that was  
21 Google's speaker grouping functionality.

22 **Q.** And when did you begin developing Google's speaker  
23 grouping technology?

24 **A.** I was brought into the project and I believe it started  
25 around March of 2015.

1 Q. And who at Google was also involved in developing this  
2 technology?

3 A. There were several engineers involved or several people  
4 involved, but the core engineers who designed the technology  
5 was Mr. MacKay and myself.

6 Q. And how long did it take you to create Google speaker  
7 grouping technology?

8 A. The feature was publicly released in December of 2015. So  
9 it took about nine months.

10 Q. And during that time that you were working on the feature,  
11 what percentage of the time were you working on it?

12 A. Um, so from about March until the end of the summer, maybe  
13 August, I was working full-time on the pieces that I was  
14 focused on; and then from the end of the summer until it was  
15 released in December, I was working part-time mainly around  
16 debugging, testing, making sure that it all works  
17 appropriately.

18 Q. And you mentioned discoverability was the aspect that you  
19 were working on; is that correct?

20 A. Yes, that's correct.

21 Q. Can you please explain to the jury what that process  
22 entails?

23 A. Sure. So the discoverability with respect to the speaker  
24 grouping functionality is the ability for all of the devices on  
25 your Wi-Fi network to be able to discover all the other devices

1 on your Wi-Fi network. Specifically each device wants to know  
2 that a device exists as well as what groups it belongs to.

3 So when a device boots up on your Wi-Fi network, it will  
4 yell out to everyone else saying, "Hey, I am this particular  
5 speaker and I am parts of Group A and B."

6 **Q.** And what role does the leader election process play in  
7 discoverability?

8 **A.** Uh-huh. So the discoverability to be able to see all the  
9 other devices on the network is what is required to then do the  
10 leader election. And so in order to play media onto a group,  
11 one of the devices in the group has to be the leader. That  
12 will be the device that actually will launch the application  
13 that you would like to listen to, and that is what downloads  
14 the media from the internet and then distributes the audio to  
15 the rest of the devices.

16 **Q.** And once a leader is elected, can that leader ever be  
17 changed within a group?

18 **A.** Yes.

19 **Q.** And are there any benefits to continuously assessing who  
20 the leader of the group is?

21 **A.** Yes. So this discovery process is constantly happening  
22 and the devices will always be checking to see who is the best  
23 leader, who is the best leader. And that makes the system  
24 very, I would say, resilient as it will adapt to whatever your  
25 network conditions may be or if you randomly unplug a device.

1 And so it ensures that the group is always available and any  
2 way that you try and disturb that, the group will recreate  
3 itself very quickly. And so it's always available for the user  
4 to play media to.

5 Q. Mr. Maclellan, did you sit for a deposition in this case  
6 back in November of 2022?

7 A. Yes, I did.

8 Q. And since your deposition, are you aware of Google  
9 implementing a new design for its speaker grouping technology?

10 A. Yes, I'm aware.

11 Q. And based on your understanding of this new design, what  
12 happens if you take a Google speaker that is playing music  
13 individually and you add it to a new speaker group?

14 A. In the new design when you add a device to a group, it  
15 will immediately -- it will immediately terminate or destroy  
16 any application that may be running on the device at that point  
17 in time.

18 So if a device is currently playing media and then you ask  
19 it to join a new group, it will immediately terminate that and  
20 it will move back into an idle mode where nothing is playing  
21 and further media playback is no longer possible.

22 Q. And if a speaker is in standalone mode, then terminates  
23 playback and launches a new command at a later time, is this  
24 the same standalone mode?

25 A. No. I personally wouldn't consider those the same

1 standalone mode. To be specific, if you are currently  
2 listening to a media app, let's say Pandora, on your device and  
3 then you stop it, that particular instance of Pandora is no  
4 longer running and that particular instance also had a session  
5 ID associated with it.

6 If the user at a later point relaunches Pandora again onto  
7 the device, we will generate a new session ID because logically  
8 to the user this is a new media session. And so while the  
9 device has gone back into standalone playback, it will be  
10 playing Pandora on that single device. As a user, if you  
11 compared those two, they would be two distinct sessions.

12 **Q.** And what is your understanding about whether this new  
13 design has been shipped into the marketplace?

14 **A.** To the best of my knowledge, it currently is shipped into  
15 the marketplace.

16 **Q.** And as part of your current job responsibilities, do you  
17 typically receive customer feedback about design changes?

18 **A.** Yes. In particular, I sit on a small task force of  
19 engineers and we focus on feedback from users as well as  
20 internal Google engineers for the bugs that come in.

21 My team specifically focuses on media playback. So if  
22 media were to suddenly stop playing or the user is unable to  
23 play media to a device, my team would get those feedback  
24 reports.

25 **Q.** Are you aware of any complaints received about the new

1 design?

2 **A.** No. I have not seen any bugs or feedback from users  
3 related to this new change in functionality.

4 **Q.** And, Mr. Maclellan, in connection with helping develop  
5 Google's speaker grouping technology, did you ever look at  
6 Sonos' products?

7 **A.** No, I did not.

8 **Q.** And what did you know about Sonos at the time?

9 **A.** Back in 2015 when I started, my only knowledge of Sonos  
10 was that they were a company and I vaguely knew that they dealt  
11 with audio products, but I wasn't familiar with anything more  
12 than that.

13 **Q.** And, Mr. Maclellan, at any time during your nine-year --  
14 nearly nine-year tenure at Google, did you ever take anything  
15 from Sonos?

16 **A.** No, I have not. All the code that I wrote was just  
17 written by myself, and I have not taken any code at any point  
18 in my career.

19 **Q.** Thank you for your time.

20 **MR. WILLIAMS:** I pass the witness.

21 **THE COURT:** Thank you, Mr. Williams.

22 Cross-examination.

23 **MR. MOSS:** Jeff Moss on behalf of Sonos.

24 \\\

25 \\\



CROSS-EXAMINATION

**BY MR. MOSS:**

**Q.** Hi, Mr. Maclellan. Thanks for being here this morning.

One question for you. You're not here to offer testimony about whether or not Google infringes the patents at issue in this lawsuit; correct?

**A.** Yes, that's correct.

**MR. MOSS:** Thank you. No further questions.

**THE COURT:** All right. Any redirect?

**MR. WILLIAMS:** No, Your Honor.

**THE COURT:** Okay. Mr. Maclellan, you may step down.

Thank you.

**THE WITNESS:** Thank you.

(Witness excused.)

**THE COURT:** Next witness.

**MR. PAK:** Your Honor, we're bringing in the witness now. He was sequestered. He's coming in. His name is Justin Pedro, P-E-D-R-O.

And my colleague Iman Lordgooei, who we introduced at the beginning of the case, will be handling the examination, Your Honor.

**THE COURT:** All right.

**THE CLERK:** May the witness approach the witness stand. Please raise your right hand.

\\

1                   **JUSTIN MANUEL PEDRO,**

2       called as a witness for the Defendant, having been duly sworn,  
3       testified as follows:

4                   **THE CLERK:** Thank you.

5               Please speak directly into the microphone. State your  
6       full name for the record and spell your last name.

7                   **THE WITNESS:** Sure. My name is Justin Manuel Pedro.  
8       Last name is P-E-D-R-O.

9                   **THE COURT:** Welcome.

10              First question.

11                   **DIRECT EXAMINATION**

12       **BY MR. LORDGOOEI:**

13       **Q.** Mr. Pedro, can you please tell the jury a little bit about  
14       yourself?

15       **A.** Sure. I'm a software engineering manager at Google. I  
16       live in Waterloo, Ontario, Canada. I've been married for about  
17       17 years and my son is about to turn 14.

18       **Q.** Great.

19              And just very briefly, can you describe your educational  
20       background?

21       **A.** Sure. I have a degree from Queens University in Canada in  
22       computer science and mathematics.

23       **Q.** And how long have you worked at Google?

24       **A.** I've worked at Google for four and a half years.

25       **Q.** And at some point during your employment at Google did you

1 work on the Google Home app?

2 **A.** Yes, I did.

3 **Q.** Approximately how long did you work on the Google Home  
4 app?

5 **A.** I worked a little shy of two years from October 2020 to  
6 June 2022.

7 **Q.** And what was your primary focus in your work on the Google  
8 Home app?

9 **A.** So I was the manager of the assistant devices in the  
10 entertainment team within the Google Home app team.

11 **Q.** All right. Now I understand you've prepared some  
12 demonstratives to help your testimony today; is that right?

13 **A.** Yes, that's correct.

14 **Q.** Okay.

15 **MR. LORDGOOEI:** Mr. Fisher, can we please pull up  
16 DDX8.3?

17 (Pause in proceedings.)

18 **BY MR. LORDGOOEI:**

19 **Q.** While we do that, for those who may not be familiar, can  
20 you just give a quick high-level overview of the Google Home  
21 app and what it is?

22 **A.** Sure. The Google Home app is Google's app for setting up  
23 and controlling your smart devices in your smart home, and it  
24 allows you to connect those devices to the Google Assistant and  
25 set up routines, that sort of thing.

1 Q. And so what are we seeing on the slide here?

2 A. What you're seeing here is the major teams that made up  
3 the Google Home app team.

4 Q. So, for example, if we take the thermostat team, can you  
5 give a brief overview of what that team is responsible for?

6 A. Sure. The thermostat team would be responsible for  
7 allowing users to set up and add Nest thermostats to their home  
8 structure.

9 It would also let them, you know, take advantage of  
10 power-saving features so that they could schedule their  
11 thermostat to save as much energy as possible.

12 Q. And just as another example, the security team, very  
13 briefly what are they responsible for?

14 A. So the security team was responsible for integrating  
15 multiple sensors, such as movement sensors, and allowing -- and  
16 cameras and allowing them to be monitored by a third-party  
17 company like ADT so you can get security monitoring through  
18 your smart devices.

19 MR. LORDGOOEI: And, Mr. Fisher, can we go to the next  
20 slide? And if you could tap.

21 BY MR. LORDGOOEI:

22 Q. So Mr. Pedro, can you explain to the jury what you're  
23 showing here on this slide?

24 A. So what I'm showing here on this slide is some of the many  
25 different uses of the Google Home app to let you set up your

1 smart devices but then use them in intelligent ways to make  
2 your home management easier.

3 **Q.** So just taking one of the examples on the slide, shopping  
4 list, can you explain how that one would work?

5 **A.** Sure. For the shopping list, you set up like a list --  
6 named list with one of many potential providers, and then you  
7 can use it to track many different types of shopping lists. My  
8 wife and I use this to track our groceries so that when we're  
9 in the kitchen, we just shout out what we need to -- to add --  
10 to add to our grocery list to the Google Assistant; and then  
11 when we go shopping, we see the list on our phone.

12 **Q.** And you mentioned that the Google Home app is used to  
13 control smart home devices; is that true?

14 **A.** Yes, that's true.

15 **Q.** And so what do you mean by "smart home devices"? Give us  
16 some examples.

17 **A.** Smart home devices are generally devices that can be -- or  
18 that exist in your home that can be controlled by a computer or  
19 a phone. Some examples are lights, cameras are another popular  
20 example where you can control your doorbell camera from your  
21 phone. And you can get as weird as like a smart hot tub was an  
22 example, a real-life example, that we have occasionally talked  
23 about at work.

24 **Q.** So what is the most popular use of the Google Home app  
25 based on your understanding?

1 A. Yeah. To my knowledge the most popular use of the Google  
2 Home app is controlling smart lights, setting the color,  
3 setting them on timers, dimming them.

4 Q. Now, you're also aware that the Google Home app has the  
5 ability to group home speakers?

6 A. Yes, I am aware.

7 Q. And I'll just represent to you that the ability to group a  
8 speaker into two overlapping groups is what's at issue in this  
9 case.

10 A. Okay.

11 Q. Based on your understanding, is that an important feature  
12 of the Google Home app?

13 A. I would not say that's an important feature based on how  
14 little speaker groups got used in the Home app.

15 Q. Now, can the Google Home app be used to group all  
16 different kinds of speakers?

17 A. No, it cannot be used that way.

18 Q. Can it be used to group speakers made by Apple?

19 A. No, it cannot be used to group speakers by Apple.

20 Q. How about speakers made by Amazon?

21 A. To my knowledge it cannot be used to group speakers by  
22 Amazon.

23 Q. Can it be used to group speakers made by Sonos?

24 A. No, it cannot be used to group speakers made by Sonos.

25 Q. And how about Google speakers? Can it be used for those

1 speakers?

2 **A.** Yes, it can be used to group Google speakers.

3 **Q.** Okay. Now, how about if a user wants to group a Google  
4 speaker with a speaker that doesn't have any Google software?  
5 Can they do that?

6 **A.** No. You need support to Google proprietary protocol to be  
7 able to group the speaker.

8 **Q.** Okay. Now I want to ask you about usage metrics.

9 You mentioned that the speaker grouping is not a very  
10 often used feature. How are you aware of that fact?

11 **A.** The usage metrics would come up in meetings when we  
12 discussed how much time we would invest in different features.

13 **Q.** Okay. And so Google maintains usage metrics regarding the  
14 Google Home app; is that correct?

15 **A.** Yes, that's correct.

16 **Q.** Can you give us an example of the types of usage metrics  
17 that you're aware of?

18 **A.** Two of the most common usage metrics would be how many  
19 different types of devices are in a typical home so you can, I  
20 mean, like tell how many lights or cameras, et cetera, are used  
21 in a typical home.

22 The other important usage metrics is setup success. So  
23 when you're setting up a particular type of device, we want to  
24 know how much trouble users are having setting up the device or  
25 how successful they are at setting up different devices.

1 Q. So what's the intended purpose of those metrics?

2 A. The intended purpose of those metrics is to improve the  
3 Google Home app to highlight where there's room for  
4 improvement.

5 Q. And does Google have any privacy policies regarding usage  
6 metrics?

7 A. Yes, they definitely do.

8 Q. And did you have exposure to those privacy policies in  
9 your role on the Google Home team?

10 A. Yes. My role was -- as engineering manager was to make  
11 sure we adhere to the privacy policies.

12 Q. Based on your understanding, what was the overall purpose  
13 of those policies?

14 A. The overall purpose of those policies was to make sure  
15 those analytics were used for their intended purpose, which was  
16 to improve the app, and that none of those analytics could be  
17 traced back to any individual users or individual devices.

18 Q. Are you aware of any audit procedures to ensure compliance  
19 with those policies?

20 A. Yes. There were multiple audit procedures to ensure  
21 compliance.

22 Q. Now, does Google use any of the metrics that we've been  
23 discussing to generate advertisements or advertising revenue?

24 A. No, Google does not use any of the analytics information  
25 to generate advertising revenue.



1 Q. And the metrics that you're aware of, is Google able to  
2 determine, for example, the percentage of users who've created  
3 overlapping speaker groups?

4 MR. RICHTER: Your Honor, we have to object. This  
5 witness was not disclosed as having going to testify about  
6 these matters. It's not a witness that was disclosed on  
7 Google's witness list as having knowledge about the  
8 functionalities, not about the usage or pricing structures, or  
9 anything like that.

10 THE COURT: What do you say to that?

11 MR. LORDGOOEI: I can withdraw the last question and  
12 move on.

13 THE COURT: All right. Please do.

14 MR. RICHTER: Can we ask for the entire line to be  
15 withdrawn, Your Honor?

16 THE COURT: Not what's already been answered. If it's  
17 been answered, we're not going to go back and strike it.

18 But next question.

19 MR. LORDGOOEI: Thank you, Your Honor.

20 BY MR. LORDGOOEI:

21 Q. Now, I'd like to ask you some questions about creating  
22 speaker groups through the use of the Google Home app.

23 A. Okay.

24 Q. Can you explain to the jury what information is sent by  
25 Google Home to the speakers -- to the Google speakers when

1 those speakers are initially grouped using the Google Home app?

2 **A.** Sure. So when the Google Home app is setting up a group,  
3 it just sends the group name and the group ID as part of a  
4 JoinGroup command to each of the speakers.

5 **THE COURT:** Each of the speakers that are in the group  
6 or all of the speakers?

7 **THE WITNESS:** No. Each of the speakers you're asking  
8 to join the group, Your Honor.

9 **THE COURT:** Okay. Next question.

10 **BY MR. LORDGOOEI:**

11 **Q.** Does the Google Home app retain any of the membership  
12 information relating to that group?

13 **A.** The Google Home app keeps a cache of the membership  
14 information for display purposes.

15 **Q.** What is a cache?

16 **A.** A cache is a temporary memory where you keep the latest  
17 copy of information so that you can avoid user interface  
18 delays. When users want to see information, you want to avoid  
19 a delay of going out and performing multiple network operations  
20 so you just keep the latest copies in memory so you can use  
21 that instead.

22 **Q.** I think you mentioned this, but maybe you can explain a  
23 little further. What is the purpose of retaining this  
24 information in a temporary cache?

25 **A.** So when you want to allow the user to display their group

1 members or we want them to allow them to edit those group  
2 members, we want to be able to do so quickly so we keep the  
3 latest information in the cache.

4 **Q.** The information that's kept in the cache, is that ever  
5 used to actually allow a user to play back music to a  
6 particular group?

7 **A.** So the membership information in the cache is never used  
8 for playback purposes.

9 **Q.** And how long is that information in the cache retained?

10 **A.** So the cache is updated on a continual basis. So in  
11 general it's updated minute by minute, and we try to not have  
12 information that's older than a minute in the cache.

13 **Q.** When you say it's generated minute by minute, it's  
14 generated based on what?

15 **A.** So the Google Home app will basically go and send a  
16 request to every device it knows about on the local network and  
17 ask it for information about itself. So it will be able to go  
18 through every speaker that it knows about and say "Tell me the  
19 latest information about yourself." And part of that  
20 information is a list of what groups that speaker belongs to.

21 **Q.** And now you mentioned that the membership information is  
22 only used for display purposes, and so can you help explain to  
23 the jury how Google Home actually allows a user to play back  
24 music to a group?

25 **A.** Sure. There is a separate screen that allows users to

1 control their audio media; and from there, we list groups and  
2 speakers that have broadcast themselves on the local network.

3 **Q.** And when you say "groups that have broadcast themselves,"  
4 what do you mean by that?

5 **A.** So Google Home app is -- does not talk to each individual  
6 speaker when it wants to play music. It -- there is a leader  
7 of the group that's elected amongst the speakers, and so Google  
8 Home app just wants to talk to that leader; and the only way it  
9 knows about the leader is by waiting for a broadcast from that  
10 leader on the local network.

11 **Q.** And so what is the information that Google Home needs and  
12 uses in order to communicate with the leader?

13 **A.** It just needs a couple of IDs with the leader, including  
14 the group ID and the IP address of the leader, which is the  
15 network address of that device.

16 **Q.** Does Google Home need any information about the other  
17 members of the group?

18 **A.** No, for music playback it does not need any information  
19 about any of the other members.

20 **Q.** And does the leader information that Google Home receives,  
21 does that information contain any information about the other  
22 members of the group?

23 **A.** No. That leader information is just about the leader, not  
24 about the other members of the group.

25 **Q.** Now I'd like to talk about the deposition that you gave in

1 this case.

2 Do you recall you gave a video deposition back in July of  
3 2022?

4 **A.** Yes, I remember.

5 **Q.** Now, in that deposition do you recall testifying that  
6 there are a collection of records that collectively specify the  
7 information needed for a speaker group but it's not a single  
8 record?

9 **A.** Yes, I remember.

10 **Q.** And in that testimony what collection of records were you  
11 referring to?

12 **A.** I was talking -- I was referring to the group name and  
13 group ID records that are stored on each individual speaker.

14 **Q.** And other than the cache that we've been talking about  
15 that's used for display purposes, does the Google Home app  
16 store the list of speakers that were added to a speaker group?

17 **A.** No, it does not.

18 **Q.** Does the Google Home app otherwise generate a list of  
19 speakers in a speaker group?

20 **A.** Other than the cache, no, it does not.

21 **Q.** And the information in the cache, is that the same list of  
22 speakers that were added to the speaker group by the user?

23 **A.** It may or may not be. The list of speakers available can  
24 be dynamic and change over time. So Google only is concerned  
25 with the speakers available on the network at any given

1 instant.

2 Q. And do you also recall during your video deposition  
3 agreeing that the collection of records stores collectively the  
4 speaker group for later recollection?

5 A. Yes.

6 Q. What later recollection were you referring to if you can  
7 recall?

8 A. For the Google Home app purpose, the only recollection  
9 that is done is for display and editing purposes. So we store  
10 these records so that we can then pull them in and allow users  
11 to edit and view the groups.

12 Q. Now, to the extent any existed, what speaker grouping  
13 technologies in the market did you look at in connection with  
14 your work on the Google Home app?

15 A. I didn't look at any other speaking grouping technologies.

16 Q. And during the time that you were working on the Google  
17 Home app, did you know anything about Sonos?

18 A. I knew that Sonos was a smart speaker manufacturer.  
19 That's about it.

20 Q. Were you aware of any Sonos technology at that point in  
21 time?

22 A. No, I was not aware of any Sonos technology.

23 Q. And what Sonos products, if any, have you used?

24 A. I have not used any Sonos products.

25 Q. Would you say you're familiar with Sonos' products?

**PEDRO - CROSS / GROSBY**

1 **A.** I am not familiar with Sonos' products.

2 **Q.** Are you aware, Mr. Pedro, of Google using any Sonos  
3 technology in developing the Google Home app?

4 **A.** I am not aware of Google using any Sonos technology in  
5 developing our products.

6 **Q.** Thank you, Mr. Pedro.

7 **MR. LORDGOOEI:** I'll pass the witness.

8 **THE COURT:** All right. Cross-examination.

9 **MR. GROSBY:** David Grosby on behalf of Sonos.

10 **CROSS-EXAMINATION**

11 **BY MR. GROSBY:**

12 **Q.** Good morning, Mr. Pedro.

13 **A.** Good morning.

14 **Q.** Mr. Pedro, can the Google Home app be used to group Sony  
15 speakers?

16 **A.** Only if Sony speakers support the Google proprietary  
17 technology.

18 **Q.** Can the Google Home app be used to group LG speakers?

19 **A.** I am not aware if they can, but only if LG speakers adopt  
20 Google proprietary technology.

21 **Q.** And can the Google Home app be used to group Home and  
22 Garden speakers?

23 **A.** I have no firsthand knowledge of that, but they would  
24 require Google proprietary protocols to do so.

25 **Q.** You're not here to provide an opinion on whether Google

1 infringes Sonos' patents; correct?

2 **A.** Correct, I'm not here for that.

3 **MR. GROSBY:** No further questions, Your Honor.

4 **THE COURT:** Thank you.

5 What was your name again?

6 **MR. GROSBY:** David Grosby on behalf of Sonos.

7 **THE COURT:** Crosby?

8 **MR. GROSBY:** With a G, Grosby.

9 **THE COURT:** Grosby. Thank you, sir.

10 Anything more with this witness?

11 **MR. LORDGOOEI:** No, no more for this witness,  
12 Your Honor.

13 **THE COURT:** Thank you.

14 You can step down Mr. Pedro. Thank you.

15 (Witness excused.)

16 **THE COURT:** Okay. Next witness.

17 **MR. PAK:** Your Honor, we call Dr. Dan Schonfeld to the  
18 stand.

19 **THE CLERK:** May the witness approach the witness  
20 stand.

21 (Pause in proceedings.)

22 **MR. PAK:** Your Honor, may I clear the -- I'm sorry.

23 **THE COURT:** Yes, please, take it all away.

24 (Pause in proceedings.)

25 **THE CLERK:** Raise your right hand.



1 DAN SCHONFELD,

2 called as a witness for the Defendant, having been duly sworn,  
3 testified as follows:

4 **THE CLERK:** Thank you.

5 Speak clearly into the microphone. State your full name  
6 for the record and spell your last name.

7 **MR. PAK:** Your Honor, may my colleague approach with  
8 the binders for this witness?

9 **THE COURT:** Yes, please.

10 (Pause in proceedings.)

11 **THE COURT:** The jury's heart is sinking to see.

12 (Laughter)

13 **MR. PAK:** I'm not going through all of these,  
14 Your Honor.

15 **THE COURT:** A box that big... Why don't you tell the  
16 jury how long this exam will be.

17 **MR. PAK:** I think I'm trying to aim for 90 minutes.

18 **THE COURT:** All right. So 90 minutes. We'll have a  
19 break in there somewhere, but the witness has got many binders  
20 up there in front of him just in case, I guess.

21 Let's go ahead. Start. Jump in.

22 **MR. PAK:** Thank you, Your Honor.

23 DIRECT EXAMINATION

24 **BY MR. PAK:**

25 **Q.** Good morning, Dr. Schonfeld.

1     **A.**     Good morning.

2             **THE CLERK:**   He did not state his full name and --

3             **THE COURT:**   What?

4             **THE CLERK:**   He did not state his full name for the  
5     record.

6             **THE COURT:**   Oh.   Give us your full name, please.

7             **THE WITNESS:**   My name is Dan Schonfeld; D-A-N,  
8     S-C-H-O-N-F-E-L-D.

9             **THE COURT:**   All right.   Next question.

10            **BY MR. PAK:**

11            **Q.**     Dr. Schonfeld, can you please tell us a little bit about  
12     yourself?

13            **A.**     Sure.   My name is Dan Schonfeld.   I live outside of  
14     Chicago in a town called Northbrook.   I live with my wife.  
15     We've been married since 1997.   I have two boys; a 23-year-old  
16     boy who studies here in the Bay Area and a younger son who is a  
17     high school senior.

18            **Q.**     And why are you here today, Doctor?

19            **A.**     I'm here to try to explain some of this technology,  
20     explain my understanding of the products, the patents as I see  
21     it, and to give you my opinions as -- about those products.

22            **Q.**     And have you prepared any demonstratives to guide us  
23     through your testimony here today?

24            **A.**     Yes, I have.

25            **Q.**     All right.

1           **MR. PAK:** Mr. Fisher, let's put up DDX10.

2           So let's turn to the next slide.

3           **BY MR. PAK:**

4           **Q.** Can you just briefly summarize your educational  
5 background?

6           **A.** Sure. I did my undergraduate degree across the bay here  
7 at Berkeley and graduated in 1986 in electrical engineering and  
8 computer science, and then did my graduate degree at Johns  
9 Hopkins University and I got my Master's and Ph.D. in 1988 and  
10 1990.

11          **Q.** And what do you do now in your career?

12          **A.** I -- ever since I graduated, I've been at the University  
13 of Illinois at Chicago where I'm a professor in electrical and  
14 computer engineering, computer science, and biomedical  
15 engineering.

16          **Q.** I see that you were codirector of Multimedia  
17 Communications Laboratory at that university; is that correct?

18          **A.** That's right.

19          **Q.** And you were also editor in chief of the *IEEE Transactions*  
20 *on Circuits and Systems* for Video Technology. Do you see that?

21          **A.** I do.

22          **Q.** Can you tell us briefly some of that experience as it  
23 relates to the technology at issue in this case?

24          **A.** Sure. So the *IEEE Transaction* that I served as editor in  
25 chief is the main journal for publication in the area of video

1 technology, and over there we publish the state of the art  
2 about things like video compression, video/audio  
3 synchronization. So things like when you get a Netflix movie  
4 and the latest technology is embedded in the code, we -- I make  
5 sure that the leaders who develop those technology -- that  
6 technology publish, give overview, teach the community about it  
7 and also the latest research is published and evaluated after  
8 peer review in those journals.

9 **Q.** And as an educator, sir, do you teach courses relating to  
10 the subject matter of this case?

11 **A.** Yes, I do.

12 **Q.** And just briefly describe some of those courses.

13 **A.** So I have taught 18 different courses since I've joined  
14 the university and most of them are in the area of multimedia  
15 systems and single processing. And primarily there's a course  
16 that I developed in the late 1990s called multimedia systems,  
17 which focuses on audio and video. It deals with audio/video  
18 synchronization, compression, and transmission and covers the  
19 entire area, and I've been teaching it ever since.

20 **MR. PAK:** Next slide.

21 **BY MR. PAK:**

22 **Q.** I know you've received several recognitions. Can you  
23 identify one or two that might have some bearing on the subject  
24 matter of this case?

25 **A.** I'm sorry. Can you repeat?

1 Q. Yeah. Let's talk about the IEEE Fellow. Can you tell us  
2 about that recognition and how it may relate to the subject  
3 matter of this case?

4 A. Sure. So a IEEE Fellow is a recognition by your peers for  
5 contributions you've made for your research, and it's -- just  
6 like SPIE, these are recognitions for -- by peers who say some  
7 of your work has stood out, and so it's given to a small  
8 percentage of the members of that -- of those societies.

9 Q. We heard about IEEE but what is SPIE?

10 A. So SPIE -- IEEE is for electrical engineers, computer  
11 scientists. SPIE is for all imaging-related work and it  
12 includes people in chemistry, physics, engineering, computer  
13 science, and anybody who does -- deals with imaging in any form  
14 whatsoever.

15 Q. And then I know you've done a lot of research for  
16 different organizations and companies, but give us a few  
17 examples of some of the research that you've done that may have  
18 a bearing on the subject matter of this case.

19 A. Just two anecdotes. One, I worked jointly with a local  
20 company here in the Bay Area called NeoMagic. We worked on  
21 video tracking and also developed hardware for doing processing  
22 more efficiently in laptops and developed a couple of patents  
23 that ultimately issued and were assigned to that company.

24 And then in addition, I've worked with a company called  
25 Prairie Combat (phonetic) in the late '90s doing things like

1 developing chips for phones that allowed for communications and  
2 also deal with audio; and doing things like when you drive, you  
3 don't want to hear your own echo coming back and so it canceled  
4 the echo and so you can hear more clearly when you're driving  
5 in a car.

6 **Q.** Dr. Schonfeld, are you being compensated for your time in  
7 connection with this case?

8 **A.** I am.

9 **Q.** Is that your customary hourly rate?

10 **A.** It is.

11 **Q.** Does your payment depend in any way on the outcome of this  
12 case?

13 **A.** No, it does not.

14 **MR. PAK:** Okay. Let's go into the next slide and jump  
15 into the claims.

16 **BY MR. PAK:**

17 **Q.** So we have been discussing the '885 claims -- claim 1;  
18 '966 patent, claim 1; and some of the dependent claims off of  
19 that claim. Do you understand that?

20 **A.** I do, yes.

21 **Q.** And have you reviewed all of the claims in this case?

22 **A.** Yes, I have.

23 **Q.** And at a high level, can you give us an overview of these  
24 two patents and their claims as it relates to the technology  
25 that is -- or the system that is disclosed in the specification

1 of both patents?

2 **A.** Sure. So these are very long claims as you can see from  
3 the patents themselves, and so what I've done is broken them  
4 down into little chunks so I can help explain it a little bit  
5 more clearly or as clearly as I can.

6 And so in the left-hand side you see the '885 patent,  
7 claim 1, but only the first elements, the first five elements;  
8 and on the right-hand side, '966 patent, claim 1, the first  
9 four elements.

10 And you can see that the one on the left is about the  
11 first ZonePlayer. That's the speaker. And the one on the  
12 right is a computing device. That's a controller.

13 And so these two are two elements of the general system  
14 and network media playback system but written from two  
15 different perspectives; from the speaker point of view and from  
16 the controller point of view.

17 **Q.** Thank you.

18 And do these patents share basically the same  
19 specification of this system?

20 **A.** It's very a similar specification, yes.

21 **Q.** And then as I understand your testimony, claim 1 of the  
22 '885 patent is describing that same system from the  
23 ZonePlayer's perspective; is that correct?

24 **A.** That's correct.

25 **Q.** And the '966 patent claims are describing the same system

1 from the perspective of the controller; is that correct?

2 **A.** That is correct, yes.

3 **Q.** And why have you highlighted for the jury the program  
4 instructions language in both claims?

5 **A.** So these first few elements are basically describing what  
6 you typically have in any kind of computing device --  
7 processors, memory, et cetera -- and part of it is actually  
8 having software that runs on them and executes various  
9 operations; and all of the remaining limitations or all of the  
10 remaining elements that are not shown on this slide would be  
11 part of that program instruction both for the player side on  
12 the left and for the controller on the right.

13 **Q.** Okay.

14 **MR. PAK:** Let's turn to the next slide.

15 **BY MR. PAK:**

16 **Q.** So what are you showing here with respect to claim 1 of  
17 the '885 and claim 1 of the '966 patent?

18 **A.** So these are two sides of the -- of what you can see from  
19 the ZonePlayer on the left and the similar description of what  
20 you can see from the controller on the right.

21 So you can see, for example, they are both part of the  
22 same network multimedia playback system, but there is a network  
23 device that is highlighted in 1.6 on the left side. That  
24 network device is referring to the controller. It's called  
25 computing device or controller. When you talk about the '966



1 patent, it's referred to as a network device when you talk  
2 about the ZonePlayer.

3 And they're talking about transmission of an indication.  
4 And from the point of view of the ZonePlayer, it's receiving  
5 that indication from the network device. From the point of  
6 view of the controller or network device, you can see in 1.6 on  
7 the right-hand side, it says it's causing an indication of the  
8 first zone scene to be transmitted to the ZonePlayer, which  
9 means it's describing exactly the same thing. In one case I  
10 receive it from the controller at the ZonePlayer; in the  
11 opposite side, I transmit it from the controller to the  
12 ZonePlayer. And the same thing for the other limitation in 1.7  
13 on the left and 1.8 on the right.

14 Q. Thank you.

15 So you heard Dr. Almeroth on his testimony describe these  
16 two patents and claims as being two sides of the same coin. Do  
17 you recall that testimony?

18 A. I do recall that testimony.

19 Q. Do you generally agree with that description?

20 A. Yeah, I think that's correct.

21 Q. All right.

22 MR. PAK: So let's turn to the next slide.

23 BY MR. PAK:

24 Q. But there are some differences in the claims between  
25 claim 1 of the '966 patent and the '885 patent, claim 1;

1 correct?

2 **A.** There are, yes.

3 **Q.** And we'll get into some of those differences as well.

4 But one of the commonalities that we see in claim 1 of the  
5 '885 patent, it talks about operating in a standalone mode --  
6 "while operating in standalone mode." Do you see that?

7 **A.** I do, yes.

8 **Q.** And we see the same language "operating in a standalone  
9 mode" appear in claim 1 of the '966 patent. Do you see that?

10 **A.** That's correct.

11 **Q.** And what were you trying to convey with this slide?

12 **A.** So what this is saying over here, they both -- the '885,  
13 claim 1, and '966 patent, claim 1 -- begin with one operating  
14 in standalone mode in which the ZonePlayer is configured to  
15 play back media individually. And that applies -- you can see  
16 there is a colon at the end of that element in both cases, and  
17 that applies for the remaining elements in the claim.

18 And so in both cases it's operating in that standalone  
19 mode on the ZonePlayer and that applies all the way down.

20 **Q.** So let's go to the rest of the claim language on the next  
21 slide.

22 And what are you trying to illustrate here with the  
23 "operating in a standalone mode" language that appears in both  
24 claim 1 of the '885 patent as well as claim 1 of the '966  
25 patent?

1   **A.**   So in here this continues to operate in standalone mode in  
2   both cases. The -- you can see that the transition occurs in  
3   slightly different points. On the right-hand side 1.10, you  
4   have you receive a third request to invoke a first zone scene;  
5   and then based on that request, you transition from operating  
6   in the standalone mode to operating in what I'm going to call  
7   group mode.

8           On the right-hand side, it's -- you can see that there's  
9   an instruction received and based on the instruction, you make  
10   the same transition. And the reason it's described differently  
11   is because it's looking at it from two different perspectives.

12          On the right-hand side it's looking at the request to  
13   invoke for play and it knows exactly when it happens. It  
14   happens on the controller.

15          On the left-hand side, it doesn't know what is happening  
16   on the controller. It wants to make the transition at the same  
17   point, but it has to continue and wait and extend the time  
18   until it receives the instruction and then it can make that  
19   transition.

20   **Q.**   Now, when Dr. Almeroth described claim 1 of the '885, he  
21   acknowledged that this "while operating in standalone mode"  
22   continues all the way to the language about "continuing in  
23   operating" -- "continuing in standalone mode" language, do you  
24   agree with that for claim 1 of the '885 patent?

25   **A.**   I do agree. There it's required to be in -- all the way

1 down continuous operating in standalone mode until the  
2 transition.

3 Q. Okay. Now, on claim 1 of the '966, we have "while" colon  
4 and then it lists all the steps, but I understood Dr. Almeroth  
5 to be saying that you could jump in and out of standalone mode  
6 and group mode. Do you agree with that interpretation?

7 A. I do not, no.

8 Q. And why not?

9 A. Well, for a number of reasons. First of all, the claim  
10 language says "while operating in standalone mode" and then it  
11 gives a colon and it applies to all the subsequent limitations.

12 Secondly, you can see I put in little square -- red  
13 squares. It refers to "the standalone mode," and that's  
14 referred to as an antecedent basis. It's referring to the same  
15 standalone mode you started with.

16 So if you went in and out of different standalone modes,  
17 it would not be referring to the same standalone mode. It  
18 would be a different standalone mode in each instance.

19 And, finally, just as a matter of common sense, while I'm  
20 setting up the system, I don't want -- I want the music that's  
21 on -- to continue to play on the speaker until I'm ready to  
22 play in synchrony in the group.

23 It just wouldn't make sense to me to have -- while I'm  
24 setting up the system, to have it go into group mode and then  
25 back alone to individual speaker and then jump back and forth

1 in that way. It would be inconsistent with my understanding of  
2 the claim.

3 **Q.** Now, when you were talking about the claim language, and I  
4 want to make sure your testimony earlier you just gave is about  
5 the claim language of the '885 patent and '966 patent; is that  
6 correct?

7 **A.** That is correct, yes.

8 **Q.** So to you as the expert, when you looked at all the  
9 evidence, including the prosecution history and the patent  
10 specification, what would one of ordinary skill in the art  
11 understand operating in a standalone mode to be?

12 **A.** Well, if I look at the entire phrase "operating in  
13 standalone mode in which the ZonePlayer is configured to play  
14 back media individually," that means you're actually playing  
15 audio. You hear it.

16 **MR. PAK:** Now, let's go to the next slide.

17 **BY MR. PAK:**

18 **Q.** Did you apply the agreed-upon constructions for zone scene  
19 and indication that the first ZonePlayer has been added to a  
20 zone scene to prepare for your trial testimony here today?

21 **A.** I did, yes.

22 **Q.** Okay. I want to focus on something important. It says  
23 "Zone scene," both parties agree, "is a previously saved  
24 grouping of ZonePlayers according to go a common theme." Do  
25 you see that?

1 A. I do.

2 Q. When it says "previously saved grouping," what are you  
3 trying to save according to the zone scene definition?

4 A. So what you are trying to save is the grouping of players,  
5 which means that you know the members of that group. So you  
6 know that -- for example, their identity; you have a way of  
7 recognizing them, you put them all together, and you save it.  
8 And every time you see zone scene and you look at an element in  
9 the claim, it has to be previously saved prior to that point.

10 Q. Now there's a second part about according to a common  
11 theme. Can that common theme like a name be given by a user or  
12 does it -- can it also be given by a system according to this  
13 definition?

14 A. Yeah, there's no limit, no restriction it has to be done  
15 by a user. As long as you have a common theme, it meets my  
16 understanding of that -- of that construction.

17 Q. And here in the indication definition, it says "added by  
18 the user to a zone scene." Do you see that?

19 A. I do.

20 Q. But if the construction were somehow modified to take out  
21 "added by the user to a zone scene," would that actually affect  
22 any of the opinions that you're presenting here today?

23 A. No, it would have no impact if you made that change.

24 Q. Okay.

25 MR. PAK: Let's go to the next slide.

1 **BY MR. PAK:**

2 **Q.** We're going to talk a lot about a person of ordinary skill  
3 in the art or those skilled in the art in your opinions today.

4 Can you tell the jury when you think about a person of  
5 ordinary skill in the art for the two patents, what do you have  
6 in mind?

7 **THE COURT:** Now, is the time period important here?

8 **MR. PAK:** I don't -- in terms of relative, I think I  
9 will establish that, Your Honor. It's not very important,  
10 so...

11 **THE COURT:** Okay.

12 All right. Go ahead. Answer the question.

13 **THE WITNESS:** So my understanding of what a person of  
14 ordinary skill in the art, it's a hypothetical person and it  
15 has -- and that person has a certain background; and, in my  
16 view, they would have a bachelor's degree in computer science,  
17 computing engineering, electrical engineering; and some  
18 experience, for example, two to four years of professional  
19 experience. And as I indicated on the bottom, some people may  
20 have more education and so they would need less experience and  
21 some people may have more experience and would need less  
22 education.

23 **BY MR. PAK:**

24 **Q.** Okay. And is there really any major disagreement between  
25 you and Dr. Almeroth on what a person of ordinary skill in the

1 art would be?

2 **A.** No. I think we basically agree. We emphasize a slightly  
3 different description of the area, but otherwise we essentially  
4 agree from my perspective.

5 **Q.** Would your opinion change in any way depending on whose  
6 definition a person of ordinary skill in the art is adopted?

7 **A.** No. My opinion would be identical if we adopted  
8 Dr. Almeroth's position.

9 **Q.** All right. Let's jump into the patent, and this is on  
10 DDX10.10.

11 I'm going to be referring to the '885 patent, which is  
12 TX3, throughout this examination.

13 What are you looking at here at column 8, line 42 to 61?

14 **A.** So this is a description from the patent specification  
15 that wants to establish a zone group or a zone scene.

16 And in particular, a person is interested in grouping  
17 together a bedroom speaker, a den speaker, and a dining room  
18 speaker and group them together and label it as a morning  
19 group.

20 And you can see how to do it on the figure on the left  
21 where you just simply select the different speakers you want to  
22 add and then you press "Add" and ultimately you apply it, which  
23 implies that you save it.

24 And then in particular, at the end of this description, it  
25 says you manually -- you do with a single command what was



1 previously done by manually and individually linking each zone.

2 So the basic idea is that instead of having to press every  
3 time den, bedroom, dining room link, you just -- simply you  
4 save it so now you just simply press one button and you just  
5 press "Morning" and it has exactly the same functionality as  
6 before the patent.

7 **Q.** Just for the record, were you referring to Figure 5A from  
8 the two patents in this particular slide?

9 **A.** I was, yes.

10 **Q.** All right.

11 **MR. PAK:** Let's go to the next slide.

12 **BY MR. PAK:**

13 **Q.** So just help us illustrate how this would work in the  
14 patent description.

15 Can you just walk us through that same morning group or  
16 zone scene example using Figure 6 flowchart?

17 **A.** Okay. So Figure 6 is a figure from the patent that  
18 describes at a high level how to set up a zone scene and then  
19 save it and then ultimately invoke it, which means play it.

20 And so you have a portion up on top, which I annotated as  
21 being part of the setup, and you can see that you -- you  
22 base -- at the end of it, you save the scene and that  
23 corresponds to what I would show -- what I show on the  
24 right-hand side.

25 So, for example, if I wanted to set up a morning scene, I

1 would connect the bedroom, den, and dining room speakers and  
2 indicate that I want to save them to play not now, it's  
3 2:00 o'clock in the afternoon as shown on the right -- upper  
4 right-hand side, but I want to play it at some future time.

5 And on the left-hand side now, we keep on going. At that  
6 point we wait for the invocation, we wait for the user to press  
7 that "Morning" button and we just keep on waiting. We go and  
8 circle. You can see it with a red arrow. We just continuously  
9 wait. That is essentially what operating in standalone is if  
10 the individual speaker is playing audio.

11 And then once we are done, we wait for the invocation and  
12 then the next morning at 8:00 a.m. we press the "Play" button,  
13 we press "Morning," and then music comes out in synchrony in  
14 all of these speakers.

15 And that is essentially from the left-hand side is how we  
16 do it; from the right-hand side is the effect we have on our  
17 life.

18 **Q.** So if I look at Figure 6, it says in blue "Save the scene  
19 with parameters." Do you see that?

20 **A.** I do.

21 **Q.** Is that saving the zone scene that we saw in the parties'  
22 construction?

23 **A.** That is -- it's -- it's saving the zone scene, it's saving  
24 the members and making sure that you can still play the  
25 speakers in the den or bedroom individually; but you have that

1 available and then when you are ready to play, you just press  
2 "Morning" and then you can play.

3 Q. So when it says "Invoke a zone scene," would that be one  
4 of the previously saved zone scenes that had the list of  
5 members for that group?

6 A. That's correct.

7 Q. All right.

8 MR. PAK: Let's go to the next slide.

9 BY MR. PAK:

10 Q. So we're looking at a different figure from the patent.  
11 Now this is Figure 7 of the '966 patent. And can you identify  
12 what you've highlighted on this slide?

13 A. So this particular figure shows up on the very top, not in  
14 red, just regular speakers that you can just play regularly,  
15 but then it has two zone scenes. One is the morning wake-up  
16 zone scene that we just created, that is the den, the bedroom,  
17 et cetera; and then another one which is Party Mode, which is  
18 all of the zones in the house, all of the speakers in the  
19 house.

20 Q. Okay.

21 MR. PAK: Let's go to the next slide.

22 BY MR. PAK:

23 Q. So we're going to walk you -- walk everyone through some  
24 of the prior art that you have considered and analyzed in this  
25 case. Are you with me?

1     **A.**    Yes, I am.

2     **Q.**    But just to establish some dates, what is the date that  
3     Mr. Lambourne testified as the conception date for both  
4     patents?

5     **A.**    That would be December 21, 2005.

6     **Q.**    Okay. And looking at this set of prior art, April 2001 to  
7     November 2005, what are some of the key prior art systems and  
8     references that you looked at?

9     **A.**    So for the purpose of my analysis, I looked at the Sonos  
10    2005 system and Sonos Forum system as some of the main ones,  
11    but I also looked at Squeezebox, Crestron system, and I looked  
12    at the Yamaha and Bose as part of my analysis of the background  
13    prosecution. I also looked at the Nourse patent and several  
14    others.

15    **Q.**    Okay. So we're going to walk through some of those today,  
16    but I noticed in September of 2006, is that the date that Sonos  
17    is alleging is the provisional date for these particular  
18    patents?

19    **A.**    Are you talking about the conception date?

20    **Q.**    The September 2006, do you understand that's when Sonos  
21    filed the provisional application for these patents?

22    **A.**    That's correct.

23    **Q.**    Okay. And we're not going to talk about your views on  
24    written description at this point, but you understand that  
25    September 2006 is the date that the first provisional

1 application was filed for these patents? Do you understand  
2 that?

3 **A.** That is my understanding, yes.

4 **Q.** So all the prior art that we're going to see predates the  
5 conception date of these particular patents; is that correct?

6 **A.** That is correct.

7 **Q.** In other words, they came before in time compared to when  
8 Mr. Lambourne said, "I came up with these ideas"; correct?

9 **A.** That is correct.

10 **Q.** All right. Let's go to the first one, Yamaha. And,  
11 actually, let's talk briefly about the Yamaha system.

12 **MR. PAK:** And, Your Honor, I'd like to have the expert  
13 take a look at TX2426.

14 **THE COURT:** You mean 24 and 26?

15 **MR. PAK:** 2426.

16 **THE COURT:** 2426. Okay. Go ahead. Look at that,  
17 please.

18 **BY MR. PAK:**

19 **Q.** Is this a Yamaha DME manual that you considered in forming  
20 your opinions in this case?

21 **A.** Oh, okay. I'm sorry. I have four binders, and I need to  
22 find the right binder first.

23 **THE COURT:** Can you help the witness find it?

24 **THE WITNESS:** I found it, Your Honor. Thank you.

25 \\\

1 **BY MR. PAK:**

2 **Q.** 2426, do you recognize this document?

3 **A.** I do.

4 **Q.** And is this the Yamaha DME manual?

5 **A.** It is the Yamaha DME manual.

6 **MR. PAK:** Your Honor, I'd like to introduce TX2426  
7 into evidence.

8 **MR. ROBERTS:** No objection.

9 **THE COURT:** Thank you. Received.

10 (Trial Exhibit 2426 received in evidence.)

11 **MR. PAK:** May I publish, Your Honor?

12 **THE COURT:** Sure.

13 **MR. PAK:** Next slide.

14 **BY MR. PAK:**

15 **Q.** So TX2426 is the Yamaha DME manual, which is prior art.

16 Looking at page 55, what are you looking at here?

17 **A.** So this is a portion of that manual, and in particular it  
18 talks about having scenes, current scenes, that are recalled  
19 and stored; and it provides there, it lists anywhere from 1 to  
20 999 zone scenes that can be stored in the Yamaha system.

21 **Q.** You can have up to 1,000 zone scenes in Yamaha; is that  
22 correct?

23 **A.** 999.

24 **Q.** Sorry. 999.

25 And you can save it and store it and then recall them

1 later; is that correct?

2 A. That is correct.

3 Q. All right.

4 MR. PAK: Let's go to the next slide.

5 BY MR. PAK:

6 Q. We've been talking a lot about what the patent examiner  
7 saw and didn't see, but did the patent examiner in this case  
8 have a chance to analyze the Yamaha DME manual?

9 A. The examiner did examine that particular manual.

10 MR. PAK: And this exhibit, Your Honor, has already  
11 been admitted.

12 BY MR. PAK:

13 Q. At page 4577 we're looking at that file history, which is  
14 the correspondence between the examiner and Sonos.

15 Are you with me?

16 A. I am.

17 Q. So this is one for the '966 patent. This is patent  
18 examiner's statements about the Yamaha reference; correct?

19 A. That is correct.

20 Q. At page 4577, what did the examiner say about this prior  
21 art Yamaha reference?

22 A. Well, the examiner stated that he takes official notice  
23 that -- and I'll just paraphrase it -- grouping of audio  
24 players to form, create, save, and recall would have been an  
25 obvious inclusion.

1 Q. Okay. And let's take a look at some additional findings  
2 on that.

3 MR. PAK: If you go to the next slide.

4 BY MR. PAK:

5 Q. This is page 4577 from TX004.

6 This time I'd like to have you read this entire sentence  
7 into the record.

8 A. Yeah, sure. It states (as read):

9 "The examiner stated the DME system enabled the  
10 practice of the claimed subject matter without undue  
11 experimentation, and as such grouping of playback device  
12 and channels thereon would have been obvious as a matter  
13 of routine experimentation over the course of normal  
14 operation by the average skilled practitioner upon the DME  
15 interface to create, save, and recall various  
16 configurations including and/or excluding the particular  
17 enumerated playback devices."

18 Q. So, first of all, do you agree with the patent examiner's  
19 statement here about the prior art Yamaha manual?

20 A. Yeah. It does disclose those scenes that can be saved and  
21 recalled and created, saved and recalled, so I do agree with  
22 the examiner, yes.

23 Q. And what was the examiner saying by saying it would have  
24 been obvious as a matter of routine experimentation?

25 A. That it would have been an easy change to do. In case it



1 was not exactly found in there, it would have been an easy  
2 modification and, therefore, would not -- is not patentable or  
3 is not -- would not be allowed.

4 **Q.** TX4 at 4577; is that right?

5 **A.** That's correct.

6 **Q.** All right.

7 **MR. PAK:** Let's go to the next slide.

8 **BY MR. PAK:**

9 **Q.** So this time we are at TX4 at 823, and this is the Sonos'  
10 response to what the examiner said; correct?

11 **A.** That is correct, yes.

12 **Q.** Can you read into the record what Sonos said about the  
13 Yamaha DME reference?

14 **A.** Sure. So Sonos replied that (as read):

15 "Thus, DME scenes can be configured, stored, recalled  
16 within a given DME device group that is already  
17 established, but the DME manual does not suggest that  
18 recalling a DME scene can regroup individual devices into  
19 different DME device groups."

20 **Q.** So just the first part first. What does Sonos tell the  
21 patent examiner and the world about what this prior art  
22 reference, the DME reference, taught in terms of zone scenes?

23 **A.** So Sonos said that zone scenes were known in the prior  
24 art, they were available in the Yamaha DME system.

25 **Q.** And could those known zone scenes be configured, stored

1 for later, and recalled?

2 **A.** Yes.

3 **Q.** And then what was Sonos saying was not in the Yamaha  
4 reference?

5 **A.** So the second half of that sentence is talking -- is where  
6 Sonos says that the Yamaha DME does not teach overlapping zone  
7 scenes, ones in which you have a single device in more than one  
8 group.

9 **Q.** Okay.

10 **MR. PAK:** And let's turn to the next page.

11 **BY MR. PAK:**

12 **Q.** Look at that same file history '885 at 5850. And this is,  
13 again, an examiner's statement.

14 And what did the examiner say after hearing from Sonos  
15 about the reason why the claims for the '885 patent was  
16 allowable over the Yamaha prior art?

17 **A.** So the reason that the -- in allowing the patents,  
18 ultimately the examiner stated that DME does not allow for  
19 continuous output of media on a particular playback device and  
20 joining of the continuous output by a selected playback device.

21 And so I'm not -- I don't know if I should read the rest  
22 of it, but the point is that the examiner wanted to see  
23 continuous output of media by the device and it was not  
24 disclosed in the user manual of the Yamaha DME system.

25 **Q.** And how does that relate to your earlier discussion of

1 what it means to operate in standalone mode?

2 **A.** So this is identical to my understanding of what operating  
3 in standalone mode in which the ZonePlayer is configured to  
4 play back media individually. It means that you are conducting  
5 a test to see whether that system should be used, and you want  
6 to allow the audio to play and continue to play as you're  
7 setting up before you invoke the group; and if that test fails,  
8 you don't hear audio continuously, then you do not meet that  
9 particular limitation.

10 **Q.** Let's go to -- this was TX6 at page 5850; is that correct?

11 **A.** That's correct.

12 **Q.** These are the examiner's statements; right, sir?

13 **A.** They are.

14 **Q.** And on this point do you agree with the interpretation of  
15 the claims by the examiner?

16 **A.** I do, absolutely.

17 **MR. PAK:** Let's go to the next slide.

18 **BY MR. PAK:**

19 **Q.** And in that same notice for allowance, the examiner made  
20 these following statements, it says (as read):

21 "Whereas invocation of a scene which adds a playback  
22 device or a group thereof as claimed causes the audio  
23 playback device to join with a particular playback device  
24 currently playing media and outputs that media in  
25 synchrony with the particular playback device without a

1 pause or interruption of the playing media nor any need  
2 for a user to further engage with playback controls of the  
3 playing media."

4 Do you see that?

5 **A.** I do.

6 **Q.** So what does this statement from the examiner say about  
7 the interpretation of "while operating in standalone mode"?

8 **A.** I think my understanding of it is this is consistent with  
9 the previous statement, just a little stronger; and that is the  
10 examiner says until you engage and invoke the synchrony group,  
11 you want to have continuous uninterrupted play without any user  
12 manipulation. And that's what the examiner was looking for in  
13 Yamaha DME. Because the examiner did not find it in Yamaha  
14 DME, he allowed the claims.

15 **Q.** This is TX6 at 5850; is that correct?

16 **A.** That's correct.

17 **MR. PAK:** Your Honor, I think this might be a good  
18 stopping point. I'm going to go into some other materials. Or  
19 I could continue.

20 **THE COURT:** All right. We'll take about a 10- to  
21 12-minute break here since we've already had one, but let's  
22 take it now. Remember the admonition.

23 Thank you.

24 **MR. PAK:** Thank you, Your Honor.

25 **THE CLERK:** All rise for the jury.

1 (Proceedings were heard outside the presence of the jury:)

2 **THE COURT:** Please have a seat.

3 Do the lawyers need the judge for anything?

4 **MR. PAK:** No, Your Honor.

5 **THE COURT:** How many more witnesses do you have?

6 **MR. PAK:** I think we just have Mr. Chris Chan and our  
7 damages expert Mr. Bakewell.

8 **THE COURT:** Are you going to finish tomorrow?

9 **MR. PAK:** I -- what do you think? Possible?

10 **MS. BAILY:** It's possible.

11 **MR. PAK:** It's possible, Your Honor.

12 **THE COURT:** Okay. Thank you.

13 **MR. PAK:** Thank you.

14 **THE CLERK:** Court is in recess.

15 (Recess taken at 11:49 a.m.)

16 (Proceedings resumed at 12:01 p.m.)

17 (Proceedings were heard out of the presence of the jury:)

18 **THE CLERK:** Please remain seated. Please come to  
19 order.

20 **THE COURT:** Be seated, please.

21 All set? Ready to go?

22 **MR. PAK:** Yes, sir.

23 **THE COURT:** All right. Let's bring in the jury.

24 (Pause in proceedings.)

25 **THE CLERK:** All rise for the jury.

1 (Proceedings were heard in the presence of the jury:)

2 **THE COURT:** All right. Back to work. Have a seat.

3 All set? Great.

4 Go ahead, Mr. Pak.

5 **BY MR. PAK:**

6 **Q.** Okay. So, Dr. Schonfeld, in your binder you're going to  
7 see TX6000.

8 **A.** (Witness examines document.)

9 **Q.** Can you confirm for me that this is the Bose prior art  
10 reference that you considered?

11 **A.** It is, yes.

12 **MR. PAK:** I'd like to move TX6000 into evidence,  
13 Your Honor.

14 **THE COURT:** I'm sorry, TX which?

15 **MR. PAK:** 6000.

16 **MR. ROBERTS:** No objection.

17 **THE COURT:** On the screen it says 6 not 6000.

18 **MR. PAK:** Right. We're going to go to the next slide,  
19 Your Honor. I wanted to admit it before we display it. So  
20 TX6000 is the exhibit.

21 **THE COURT:** 6000, all right.

22 Any objection?

23 **MR. ROBERTS:** No objection, Your Honor.

24 **THE COURT:** Thank you. Received in evidence.

25 (Trial Exhibit 6000 received in evidence.)

1           **MR. PAK:** Thank you, Your Honor.

2           **BY MR. PAK:**

3           **Q.** So looking at the Bose prior art reference, was this one  
4 that was considered by the Patent Office?

5           **A.** It was, yes.

6           **Q.** Okay. And have you had a chance to analyze it?

7           **A.** Yes, I did.

8           **Q.** Okay. And can you tell the jury briefly what is this  
9 showing as part of the Bose prior art reference?

10          **A.** Sure. So you can see on the screen there are various  
11 rooms. Each room represents a speaker system, and you can have  
12 a room button and you can connect them so that you can -- when  
13 you press the "Room" button, it will synchronously play in two  
14 rooms. In this case, Room A and Room C.

15           And on the right-hand side you have a separate "House"  
16 button and you can just press "House" button and you can play  
17 in all of the rooms in the house depending on how you set it  
18 up.

19           And so these would be an example of two zones, two groups  
20 of speakers that are overlapping and they're separate groups  
21 that are overlapping.

22          **Q.** And can you identify for the record in this example which  
23 speakers would overlap between what you show on the left and  
24 the house mode that you see on the right?

25          **A.** Yeah. The speakers in the -- on the left Room A and

1 Room C are in both the separate room group as well as in the  
2 house mode. That sometimes you hear people refer to it as  
3 Party Mode when it's all of the rooms in the house.

4 Q. Okay. And that's TX6000 at pages 7, 10, and 44; is that  
5 correct?

6 A. That's correct.

7 Q. Okay. And the examiner said some things about this  
8 reference as well. So let's take a look at the next slide.

9 Going back to TX6, which is the '885 patent file history,  
10 can you read into the record what the examiner said about the  
11 prior art Bose system as described in the manual?

12 A. Sure. The examiner said (as read):

13 "Bose displays static groupings of media players  
14 attached as rooms and the rooms may be individually  
15 activated and individually configured for delivery of a  
16 synchronous media and/or grouped into a Party Mode where  
17 all rooms synchronously deliver a common media."

18 Q. So do you agree with the examiner that both static  
19 grouping and Party Mode, which would overlap with some of those  
20 static groupings, was well known, for example, in the Bose  
21 reference prior to Mr. Lambourne's conception date?

22 A. Yeah, that's part of what he says in addition to the  
23 "individually activated" portion.

24 Q. And were these prosecution history statements important to  
25 you in understanding in how to apply the claims to both the



1 accused devices as well as the prior art in this case?

2 **A.** They were, yes.

3 **Q.** Okay. So let's turn to -- now we're going to focus on  
4 infringement issues first and then we're going to get to  
5 validity issues next.

6 Are you with me?

7 **A.** I am.

8 **Q.** Okay.

9 **MR. PAK:** Let's go to the next slide.

10 **BY MR. PAK:**

11 **Q.** We've been talking a lot about old designs and new designs  
12 in this case. You've heard that?

13 **A.** I have, yes.

14 **Q.** And you've heard the testimony of Google's engineers about  
15 the operation and design of the old devices and the new  
16 devices. Do you recall that?

17 **A.** I do.

18 **Q.** And do you generally agree with the statements that have  
19 been made under oath by Google's engineers on their own  
20 products?

21 **A.** Yeah. They are consistent with my understanding of how  
22 the system works.

23 **Q.** And what is your understanding based on? What did you do  
24 to arrive at that understanding?

25 **A.** I had to -- my understanding of the overall analysis I had

1 to do had to do -- begin with the patents, the prosecution  
2 history that we just went through. I -- but, in addition, I  
3 had to look at Google interrogatory responses, deposition  
4 testimony, documents, websites, source code, the operation of  
5 the system, and I had to analyze all of these things prior to  
6 reaching my conclusions.

7 **Q.** So just for the record, for the old devices or the old  
8 design, can you identify the firmware version numbers on the  
9 record for those?

10 **A.** Sure. They -- for the old design it would have been  
11 firmware version numbers 1.56.309385 and 1.56.313652.

12 **Q.** And what about the firmware version for the new design  
13 devices?

14 **A.** The new design firmware version number is 1.56.324896.

15 **Q.** And on the bottom there, can you identify the accused  
16 speaker devices?

17 **A.** Sure. So they fall into two categories. These are just a  
18 few sample examples, but they fall into two categories. On the  
19 left-hand side, the left three are Google accused speakers and  
20 the -- on the right two are Google accused controllers.

21 The speakers are various speakers. Some of them, like the  
22 Nest Mini and Nest Audio player, are just speakers, smart  
23 speakers; but some of them, as you saw earlier in the video  
24 that was shown by Mr. MacKay, are Nest hubs where you can  
25 actually see the application while you're listening to the

1 music on the speaker.

2 And on the right-hand side, these are phones, iPhones and  
3 a Google Pixel phone, but they have the Home app downloaded and  
4 installed before they can -- as part of their functionality  
5 required before they can be used.

6 Q. Okay.

7 MR. PAK: Let's go to the next slide.

8 BY MR. PAK:

9 Q. So to organize your presentation today, we're going to  
10 first start with the new design and we're going to look at the  
11 '885 patent and the '966 patent.

12 Are you with me?

13 A. I am.

14 Q. And we're going to go through some of the analysis, but  
15 ultimately what is your opinion on whether the new design  
16 infringes claim 1 of the '885 patent?

17 A. It does not infringe under the new design.

18 Q. Okay. And what is the missing limitation? It's an  
19 all-or-nothing test. What's the missing limitation that you're  
20 focused on?

21 A. It's the operating in standalone mode in which the first  
22 ZonePlayer is configured to play -- to play back media  
23 individually and all of the limitations subsequent to that up  
24 until the transition to operating in what I called group mode;  
25 and that applies to '885 patent, claim 1, as well as '966

1 patent, claim 1, as well.

2 Q. Just to be clear, in any of these devices that are running  
3 the new design, is the launch command that is used to invoke a  
4 group playback, does that occur in standalone mode?

5 A. It does not. It does not occur while operating in  
6 standalone mode.

7 Q. Thank you.

8 So I'm going to be very brief, but these are some of the  
9 slides that we saw Mr. MacKay present earlier today?

10 A. That's correct.

11 Q. And just to harmonize your presentation, we're going to  
12 reuse some of those slides. Are you okay with that?

13 A. Sure.

14 Q. So --

15 MR. ROBERTS: Your Honor? I apologize, Your Honor.

16 I'm going to object that there is nothing in the witness'  
17 expert report about idle mode in any way; and insofar as that  
18 was new testimony from a fact witness, there's just nothing in  
19 the expert report.

20 THE COURT: The expert must stick to what's in the  
21 expert report.

22 MR. PAK: He talks about stopped mode so I'll use the  
23 word "stopped mode."

24 BY MR. PAK:

25 Q. Is that okay.

1     **A.**     Sure.

2     **Q.**     All right.   So in the Google's new design, let's say you  
3     have four speakers that are playing music individually, what  
4     mode of operation would they be operating in at that point?

5     **A.**     They -- in the -- you're talking about the new design at  
6     the moment?

7     **Q.**     Yes.   This is the new design.

8     **A.**     Okay.   So in the new design, if you are playing --

9             **MR. ROBERTS:**   I apologize, Your Honor.

10            I'd like an offer of proof as to where stop mode is used  
11   in the expert report.

12            **THE COURT:**   Okay.   Show me where it's used.

13            **MR. PAK:**   Let's pull it up.

14                   (Pause in proceedings.)

15            **MR. PAK:**   And we may see paragraph 47.   Can I see  
16   Dr. Schonfeld's rebuttal report at paragraph 47?

17            **THE COURT:**   Read to me the sentence that says  
18   something about stop mode.

19            **MR. PAK:**   Sure, Your Honor.   Let me grab the report.

20                   (Pause in proceedings.)

21            **MR. PAK:**   (as read):

22                    "As another example of a speaker that is playing back  
23   music and is added to a group that is not playing music  
24   will stop playback when added to that group."

25            That's paragraph 47.   Let's look at paragraph 54 (as

1 read):

2 "Where multiple speakers being added to the new group  
3 are playing music, whether speakers being added to the new  
4 group are playing the same music or different music, the  
5 result is the same."

6 And it goes on to talk about for each speaker added to the  
7 new group leaves its prior playback state and its playback is  
8 stopped at the same time.

9 **THE COURT:** All right. Why can't he testify? That's  
10 in the report; right?

11 **MR. PAK:** Yes, Your Honor.

12 **MR. ROBERTS:** He can testify about the fact that the  
13 playback is stopped, but there is no testimony about this being  
14 a separate mode or it doesn't use the word "mode." He says the  
15 playback is stopped. It's not playing audio. That was his  
16 prior opinion.

17 Now Google is coming in and saying there's some new third  
18 mode, and that's just not in the report.

19 **THE COURT:** Well, stick to the language in the  
20 report --

21 **MR. PAK:** Will do, Your Honor.

22 **THE COURT:** -- as I see it.

23 **BY MR. PAK:**

24 **Q.** So, Dr. Schonfeld, this is -- the four speakers here,  
25 they're playing music in standalone mode; is that correct?

1     **A.**     They're operating in standalone mode in which each of the  
2     ZonePlayers is playing back music individually.

3             **MR. PAK:**   So if we go to the next slide.

4     **BY MR. PAK:**

5     **Q.**     We talked about the JoinGroup command. Did you analyze  
6     that command operation as well?

7     **A.**     I did, yes.

8     **Q.**     And so what happens when the speakers receive that  
9     JoinGroup command? Do they stop playing music?

10    **A.**     Yes. So as soon as the JoinGroup command arrives, they --  
11    the app that they're playing from is discontinued. It is  
12    stopped. It is torn down or killed, and you can no longer play  
13    music at that point in time.

14    **Q.**     Okay.

15             **MR. PAK:**   So let's go to the next slide.

16    **BY MR. PAK:**

17    **Q.**     So is that what's being displayed here where the music app  
18    that was playing on each of these four speakers are stopped?

19    **A.**     That's right. At that point you are no longer operating  
20    in standalone mode. No music is playing and you are just  
21    completely stopped and, in fact, you don't even have an app to  
22    play music from.

23             **MR. PAK:**   Let's go to the next slide.

24    **BY MR. PAK:**

25    **Q.**     Now, in the Google's new design, if there was music

1 playing on one of the devices -- like instead of a group, we  
2 have a standalone operation on one device -- what would happen  
3 when it receives the JoinGroup command?

4 **A.** Yeah, so this is essentially the same experiment. And I  
5 should explain something here.

6 I drew on the upper left-hand portion a green box, and I  
7 did it before in the corresponding experiment. And everything  
8 is from the point of view of the first ZonePlayer. So one  
9 ZonePlayer. And when you're creating a group, you have to look  
10 how -- what the behavior of that one player is.

11 And I did the experiment twice. Previously when the other  
12 players were also playing music and now I'm doing the  
13 experiment again when the other players are not playing music.  
14 And, once again, it will behave exactly the same. When you try  
15 to add members into a group, it will tear down that app, it  
16 will stop the music, and it will no longer operate in  
17 standalone mode.

18 **Q.** And based on your understanding of what operating in  
19 standalone mode to be, is this the proper test that you should  
20 be analyzing?

21 **A.** Yeah. The test requires you to follow the claim language,  
22 which means you're running in a situation where the current --  
23 the current speaker, the first ZonePlayer is playing audio.  
24 You want to make sure it continues to play audio as you're  
25 adding it to the group members; and if that fails -- and in



1 this case it failed in both circumstances, both when the other  
2 speakers were playing or when they were not playing -- that  
3 means you did not meet the limitation.

4 Q. Okay. But just to be comprehensive, did you do some other  
5 tests as well?

6 A. I did, yes.

7 Q. Let's talk about a couple of other tests you ran.  
8 What are you showing here?

9 A. So these are the tests corresponding to the case when you  
10 no longer -- you start from a position of not meeting the  
11 limitation because you're not operating in standalone mode --  
12 and I'm again talking from the point of view from the first  
13 ZonePlayer, which is up on the upper left-hand corner -- and  
14 this time the other speakers are playing music.

15 And when you press to join the group together with the  
16 JoinGroup command, then, once again, the same thing happens.  
17 All of the members are grouped together, the app is killed on  
18 any device that's running the app, and the music is stopped.

19 Q. Okay. And then did you do one more test?

20 MR. ROBERTS: Your Honor, I apologize.

21 I have to object again. The witness' report didn't  
22 mention anything about the app being stopped as being a basis  
23 for his opinion. It's all about the playing of the music and  
24 the stopping of the playing of the music.

25 MR. PAK: Your Honor, that's -- we read some testimony

1 from his expert report. He's talking about the stop, and so  
2 this is exactly what we heard from Mr. MacKay.

3 **THE COURT:** Well, no. He's saying that the -- is  
4 there something about app being killed in the report?

5 **MR. PAK:** Yes. He talks about the StopCurrentApp  
6 functionality. That's exactly the functionality that kills the  
7 app.

8 **MR. ROBERTS:** It's not in the report. The report is  
9 about stopping playback of music a hundred percent. We've  
10 electronically searched it while we're sitting here. It does  
11 not mention, as far as we can find, the app being killed as a  
12 basis for his opinion.

13 **THE COURT:** Well, show me where it says "app being  
14 killed" in the report.

15 **MR. PAK:** We will look.

16 (Pause in proceedings.)

17 **MR. PAK:** I'd like to read from paragraph 108 of his  
18 rebuttal report (as read):

19 "As I discussed for local groups that are found" --  
20 "not found within the set of speaker groups, playback for  
21 that group is immediately terminated." Quote,  
22 "StopCurrentApp," terminated.

23 Your Honor, so this is not a new theory.

24 **THE COURT:** Read it slowly again.

25 **MR. PAK:** Sure. (as read):

1 "As I discussed for local groups that are not found  
2 within this set of speaker groups, playback for that group  
3 is immediately terminated."

4 And in parenthetical he puts "StopCurrentApp."

5 **MR. ROBERTS:** Your Honor, the next sentence -- I  
6 apologize.

7 **THE COURT:** What does it say?

8 **MR. ROBERTS:** (as read):

9 "And only after this playback is terminated is" --  
10 "the speaker is then added through AddGroup function."  
11 So it is clearly talking about the playback being  
12 terminated when it uses the word "terminated."

13 **THE COURT:** Well, I -- I don't know. That's a matter  
14 of interpretation based -- I think what Mr. Pak read was -- so  
15 I'm going to allow -- overrule the objection and allow you to  
16 cross-examine on that.

17 **MR. ROBERTS:** Thank you, Your Honor.

18 I misread the sentence. So I just want to be careful. It  
19 says (as read):

20 "As I discussed for local groups that are not found  
21 within the set of speaker groups, playback for that group  
22 is immediately terminated (StopCurrentApp)."

23 So the sentence he read is talking about playback being  
24 terminated, not the app.

25 **THE COURT:** Well, read it again, Mr. Pak, so the

1 sentence that you read so that I --

2 Let me tell you what -- while you're finding it, ladies  
3 and gentlemen of the jury, here's what's going on. Both sides  
4 have, as you know, quote, "experts," close quote, that come in  
5 to give opinions about the technology and other things. And  
6 the rules -- we have a rule book. The national rule book says  
7 that they have to stick on direct examination to what's in  
8 their report. So each side has to give a report before they  
9 come in, and then they get deposed on it.

10 The purpose for that is so that we can have an orderly  
11 presentation and the other side can go out and get an expert to  
12 respond to it and try to narrow the issues.

13 And so they're not supposed to on direct examination veer  
14 off of what they said in their report.

15 Now, I tend to enforce the rule. It's kind of hard to do,  
16 but I enforce it, but I -- that's -- that's what's going on  
17 here.

18 **MR. PAK:** Your Honor, I can read that sentence.

19 **THE COURT:** All right. Read it to me, but this time  
20 read it slowly. You read it too fast.

21 **MR. PAK:** (as read):

22 "As I discussed for the local groups that are not  
23 found within the set of speaker groups, playback for that  
24 group is immediately terminated (StopCurrentApp) and only  
25 after this playback is terminated on the speaker is a new

1 group then added through the AddGroup function."

2 **THE COURT:** All right. I'm -- I heard the phrase  
3 "stop app," and I -- that's enough to justify the question that  
4 was pending and then allow for cross-examination.

5 **MR. PAK:** Thank you, Your Honor.

6 **THE COURT:** So with that modification, the objection  
7 is overruled.

8 Please go ahead.

9 **MR. PAK:** Thank you, Your Honor.

10 **BY MR. PAK:**

11 **Q.** So let's go to the last test that you ran, and this time  
12 the -- what are the speakers doing here?

13 **A.** So in this case none of the speakers are playing, none of  
14 them are operating in standalone mode, and I give a command to  
15 join the group.

16 And, once again, when I give the command, it sends a  
17 JoinGroup command -- JoinGroup message; and then, once again,  
18 it looks at it and if no -- if any app is running, it will kill  
19 it. But if no app is running, it will just stay the way it  
20 was.

21 **Q.** Okay. So is that the functionality that we heard from  
22 Mr. MacKay about StopCurrentApp right before AddGroup G?

23 **A.** That's right. If you look in the source code, you will  
24 see that as soon as you get the JoinGroup command, it will look  
25 to see if the group exists. If it is a new group that has to

1 be formed, it will first StopCurrentApp -- that's the function  
2 up on top in yellow -- and only then go to the next command,  
3 which is AddGroup.

4 So you cannot add to a group before you StopCurrentApp  
5 because StopCurrentApp functionality is always applied first.

6 **Q.** So what are the limitations that you believe and the jury  
7 has to decide is missing from claim 1 of the '885 patent for  
8 the new design?

9 **A.** So I highlighted the portions of claim 1 of the '885  
10 patent that deal with operating in standalone mode; and, in  
11 particular, as you recall, this is required to happen for all  
12 the limitation from the first one to the end.

13 But the moment you try to do the first receiving message  
14 and create a group, it will go out of standalone -- other  
15 operation in standalone mode and, therefore, all the subsequent  
16 limitations will not be met.

17 **Q.** Okay. Let's go to the '966 patent.

18 What are your opinions on the specific limitations that  
19 are not satisfied in the '966 claim based on the evidence that  
20 you've been able to analyze?

21 **A.** So, once again, I highlighted the portions of the claim  
22 that deal with the operating in standalone mode, and same thing  
23 as before. This applies for all the limitations from the first  
24 one all the way to the last one; but the moment you try to do  
25 the first based-on language, and you can see it in the claim,

1 it will receive an indication to form the first group -- that's  
2 the limitation down in the middle of the left column -- it will  
3 get out of operation in standalone mode, and all subsequent  
4 limitations will fail or not be satisfied.

5 **Q.** Even under Dr. Almeroth's view on the '966 where you can  
6 go in and out of standalone mode, would your views change on  
7 whether these limitations around operating in standalone mode  
8 are satisfied particularly when you are invoking the group?

9 **A.** Well, it would change with regard to some of the  
10 limitations, but at least one limitation would not be satisfied  
11 under his own theory. Because if you look at the limitation  
12 that's highlighted in yellow on the very bottom on the left  
13 going to the top on the right, that limitation requires that  
14 you join the first group; and subsequent to joining, you  
15 continue to display the JoinGroup and then invoke the  
16 JoinGroup.

17 Well, the moment you create that group, you will leave the  
18 operation of operating in standalone mode and, therefore, the  
19 display and the invocation, that third request, will not happen  
20 while operating in standalone mode. So even if you accept the  
21 view that you can go in and out of an operation and standalone  
22 mode, this particular portion, this particular limitation would  
23 not be met under that theory.

24 **Q.** So let me see if I can summarize for the jury.

25 Do the Google new design products invoke or launch group

1 mode when they're still operating in standalone mode?

2 **A.** No. You have to leave operation in standalone mode before  
3 you can launch or invoke any particular group in synchrony.  
4 You cannot do it in the new design while operating in  
5 standalone mode.

6 **Q.** Does that mean there's no infringement of any of the  
7 asserted claims for the new design?

8 **A.** In my view, there is no infringement of any of the  
9 asserted claims, no.

10 **MR. PAK:** So let's go to the next slide.

11 **BY MR. PAK:**

12 **Q.** I want to talk about one more infringement issue that the  
13 jury must decide. This is for the '966 patent.

14 And ultimately what is your view on whether both the new  
15 and the old design satisfies all the limitations of the '966  
16 patent claims?

17 **A.** So the '966 patent has an extra step or an extra  
18 limitation which requires storage of the zone scene, and that  
19 is not performed in the new design or the old design and that  
20 applies only to the '966 patent.

21 **Q.** Can you remind the jury when we talked about the  
22 construction or the definition of zone scene as a previously  
23 saved grouping, what does storing of zone scenes require?

24 **A.** So that would require that you take the members of the  
25 group and you store them, put them somewhere so it's available



1 persistently, so you can -- when you want to use it later, it's  
2 still available to you and you can actually play music tomorrow  
3 morning if you choose to do it tomorrow morning.

4 **Q.** And when you invoke that previously saved zone scene, what  
5 information are you using about the members of the group,  
6 according to the claims, in order to cause that group playback?

7 **A.** You have to know the group membership. So you have to  
8 have some identity of all the members of the group before you  
9 can store the zone scene and proceed to activate the group.

10 **Q.** So according to the claim language that you studied, are  
11 you using the grouping or the membership information that was  
12 stored at the time that you created the group in order to  
13 invoke that group later?

14 **A.** That's right. You are using the previously defined  
15 grouping that you stored at the time you created it and then  
16 you store it for later when it's available for later. Then you  
17 can invoke it based on that membership information.

18 **Q.** Okay. Now, let's see if we can look at some evidence on  
19 this point.

20 '966 patent, column 10, line 36 through 52, what does this  
21 passage in the patent specific indication teach you about this  
22 issue?

23 **A.** So in this portion of the patent specification, it talks  
24 about saving -- saving zone scenes; and in particular it talks  
25 about the fact that you have to save certain parameters, and

1 those parameters include the associated players and it gives an  
2 example of the IP address. That's one way to characterize the  
3 different ZonePlayers. But some form of identifiers would be  
4 required if you were to save zone scenes, as I understand what  
5 a zone scene would mean, which is a previously saved grouping  
6 of ZonePlayers according to a common theme.

7 **Q.** I'm not going to ask you to rehash the testimony we heard  
8 from Mr. MacKay; but when Mr. MacKay testified under oath and  
9 he talked about the functionality that he designed and  
10 developed for the JoinGroup command, was his testimony  
11 consistent with your independent review of the source code?

12 **A.** It was, yes.

13 **Q.** Okay. And the specific things that are highlighted here  
14 in red from TX6453, which is one of the design documents from  
15 Mr. MacKay, do any of these things, UUID, the group ID, or name  
16 actually tell you anything about the actual speakers that  
17 belong to a group or the grouping?

18 **A.** No. They -- these are just an identifier of the group and  
19 the name of the group, but the system in Google's design is so  
20 that you never have to store the actual group members. Each  
21 one just simply records the fact that they are part of that  
22 group with a particular name and they don't care what the other  
23 speakers are doing.

24 **THE COURT:** May I ask about that?

25 **THE WITNESS:** Sure.

1           **THE COURT:** So if -- let's take the Google system, the  
2 new one I guess, and you want to have ZonePlayer A and  
3 ZonePlayer B in a group scene and you want to be able to recall  
4 that every time you want indefinitely over the future.

5           Are you saying that you have to put that in every single  
6 time you -- in other words, you -- if you -- on a Monday, you  
7 want to call up those two, you have to reprogram them all over  
8 again and then on Tuesday you have to do it again?

9           It sounds like you are saying that they're not stored so,  
10 therefore, you have to keep putting them in on a dynamic basis  
11 every single day. Now, is that what you are saying?

12           **THE WITNESS:** No. Let me clarify it.

13           **THE COURT:** Please do.

14           **THE WITNESS:** It's an important point so let me spend  
15 some time clarifying this issue.

16           You do not need to restore everything from scratch every  
17 time. What you do need to do, these are speakers and they are  
18 very kind of noisy speakers. They are constantly saying "This  
19 is my name and I'm part of this group." And all of them are  
20 talking nonstop.

21           And so the system doesn't care what you initially wanted  
22 to do. They only care what speakers are available now and what  
23 do they tell me.

24           So I have -- I'm listening to this room and three people  
25 are saying "I'm part of this group" and "I'm part of this

1 group" and "I'm part of this group"; therefore, I don't care  
2 what the group was initially. I only care what it is this  
3 instant, and I take these three people and I know that they are  
4 part of the group and they begin to operate and function  
5 differently.

6 **THE COURT:** All right. So it sounds like each of the  
7 speakers permanently store the -- the scenes that they're a  
8 member of.

9 **THE WITNESS:** Exactly what's shown on the screen right  
10 now. That's exactly what you said. They are storing the fact  
11 that "I'm part of Group A," and that's the only thing that they  
12 store.

13 **THE COURT:** But another speaker would store that --  
14 that that particular speaker is a member of a group?

15 **THE WITNESS:** Of Group A also perhaps.

16 **THE COURT:** Okay.

17 **THE WITNESS:** Or maybe two groups. And they are  
18 constantly shouting "I am a member of that group," and  
19 everybody listens to it; and then based on that information,  
20 both the controller updates its information, or the phone in  
21 this case, and the individual speakers decide they compete who  
22 is going to be the leader and constantly continue to do that.

23 **THE COURT:** And you said "shouting," but you mean it's  
24 done over the Wi-Fi?

25 **THE WITNESS:** It's done over the Wi-Fi.

1           **THE COURT:** It's not really shouting.

2           **THE WITNESS:** Yeah.

3           **THE COURT:** It's radio transmissions.

4           **THE WITNESS:** That's right. It's I say noisy, but  
5 it's just constant broadcasting. They're doing like an old  
6 television system from -- with a big tower. They are just  
7 putting out signals very often.

8           **THE COURT:** Okay. All right.

9           Thank you for letting me interrupt. Go ahead.

10          **MR. PAK:** No, Your Honor, very good question.

11       **BY MR. PAK:**

12       **Q.** So in the example where a speaker is broadcasting, "Hey,  
13 I'm part of this group," another speaker is broadcasting "I'm  
14 also a part of that same group," and I have another speaker  
15 that's doing the same thing, in the Google system what happens  
16 if the second person all of the sudden stops broadcasting  
17 because he's powered off or has a problem with the speaker?  
18 What happens?

19       **A.** It doesn't know about that. From the point of view of the  
20 current mode, the group is a different group and it never --  
21 doesn't care what the initial group was because there -- it has  
22 no notion of what was initially defined, what was initially  
23 saved because nothing was initially saved from the -- from that  
24 point of view. You only care what happens at this instant, and  
25 it is continuously in a state of flux.

1 Q. Okay. Thank you.

2 MR. PAK: May I move on, Your Honor?

3 THE COURT: Yes.

4 MR. PAK: Thank you.

5 So going to the next slide.

6 BY MR. PAK:

7 Q. Based on that understanding and the review of all the  
8 evidence, what is your opinion on whether the causing storage  
9 of the first zone scene, the first zone scene that you created  
10 at the time of creation, is satisfied in claim 1 of the '966  
11 patent?

12 A. So as I understand it, the first -- storage of the first  
13 zone scene would require persistent storage of the membership;  
14 and as I just mentioned, that is not done because you only  
15 store the name and the identifier of the group and, therefore,  
16 these -- these limitations are not satisfied in claim 1 of the  
17 '966 patent.

18 Q. And we talked about some dependent claims that follow from  
19 claim 1. If claim 1 of the '966 patent is not infringed for  
20 all the products, the old and the new, can there be  
21 infringement of any of the dependent claims?

22 A. No, because the dependent claims essentially incorporate  
23 all of the limitations of the independent claims as if they  
24 were part of the dependent claim and all of the storage  
25 requirement, therefore, are part of all of the dependent claims

1 as well.

2 Q. Okay. So we're going to transition now and see if we can  
3 streamline the presentation for the jury.

4 They have heard a lot of this already, but on the prior  
5 art, so one other set of questions that the jury has to decide  
6 is whether any of these patents are invalid; correct?

7 A. That's correct.

8 Q. And if they're found by the jury to be invalid, there's no  
9 infringement and no damages need to be decided; correct?

10 A. That's my understanding, yes.

11 Q. So if we look at -- can you just briefly summarize the  
12 evidence that you consider to form your opinions about the  
13 prior art in this case?

14 A. So similar to the discussion we had about infringement,  
15 here I looked at the patents, the prosecution history. Then in  
16 addition, I looked at sworn testimony and admissions, but this  
17 time there were interrogatory response and depositions relating  
18 to prior art such as Sonos engineers and also documentation  
19 relating to the prior art, internal confidential documents  
20 relating to the prior art, source code related to the prior art  
21 systems, and I also tested some systems. Some of them I  
22 actually operated, some I just tested physically.

23 Q. Okay. So we've heard a lot in this case that the examiner  
24 may have seen all this.

25 What did the patent examiner, the person who looked at

1 these zone scene patents from Sonos, what were some of the  
2 things that he didn't have the opportunity to consider?

3 **A.** So he saw a lot, but he did not see a lot of the  
4 information that I relied on. In particular, any type of  
5 testimony, interrogatory responses related to the prior art was  
6 not available to the examiner. Internal confidential documents  
7 and source code was not available to the examiner. The actual  
8 physical systems and the operation of some of the physical  
9 systems was also not available to the examiner.

10 **Q.** Okay. Now, you did look at all those things; correct?

11 **A.** I did, yes.

12 **Q.** Let's march through the claims.

13 **MR. PAK:** And let's look at the next slide.

14 **BY MR. PAK:**

15 **Q.** We're going to start with claim 1 of the '885 patent.

16 This is the one from the ZonePlayer perspective; correct?

17 **A.** That's correct.

18 **Q.** Just to streamline the presentation I'm going to refer to  
19 these limitations as 1.0, 1.1. Is that okay with you?

20 **A.** Sure.

21 **Q.** So we have the first five limitations going from 1.0 to  
22 1.4.

23 Is there any disagreement with you and Dr. Almeroth about  
24 whether those limitation are satisfied in the Sonos 2005 prior  
25 art system?



1 A. Not that I'm aware of, no.

2 Q. Based on your independent review, does the Sonos 2005  
3 system have a network interface, one or more processors, a  
4 computer-readable medium, and some program instructions?

5 A. They do. It's the ZP100 ZonePlayer that you saw earlier  
6 in the courtroom.

7 Q. So if we go to TX62 at page 6, are those ZonePlayers in  
8 the Sonos 2005 -- this is talking about the Sonos 2005 prior  
9 art system; correct?

10 A. That's right.

11 Q. So these four ZonePlayers there, would they all have the  
12 things we talked about, memory processor and so on?

13 A. Yeah. These are essentially computer systems. If you  
14 were to open it up, you would see inside a processor, memory,  
15 Wi-Fi transceiver, ethernet connectors, and some storage in the  
16 form of flash memory, and all of that would be part of it just  
17 like any other computer type system.

18 Q. And just, while we may on this slide, do you see that  
19 there's the controller here, the one on with the little screen  
20 on the right, is that also a mini computer?

21 A. Yeah. There are two other computers -- there are two  
22 other controllers: The controller -- the small controller  
23 CR100, that's another mini computer with all of those things;  
24 and so is the one on the right, which is a big desktop  
25 controller, which is actually a real desktop computer.

1 Q. And do these controller devices in the Sonos 2005 system  
2 also have memory, network interface, a processor, and so on, as  
3 required by the claims?

4 A. They do.

5 Q. So we're going to skip and go to this slide.

6 Now, we talked about this being two sides of the same  
7 coin. Do you recall that?

8 A. I do.

9 Q. So we checked off the first five boxes. I want to focus  
10 on 1.5 limitation, which begins with "While operating in a  
11 standalone mode," and 1.6, which starts with "Receiving from a  
12 network device." Do you see that?

13 A. I do.

14 Q. We're going to march through some of the evidence, but is  
15 it your opinion, sir, that the Sonos 2005 system satisfied 1.5  
16 and 1.6?

17 A. It does.

18 Q. So we already talked about this at TX62 at page 44. What  
19 does this show about both the software upgrade possibilities of  
20 the ZonePlayer as well as the desktop controller?

21 A. So we just spoke about the fact that the controller, the  
22 CR100 as well as the desktop computer with a user interface,  
23 are essentially computers that have all the ingredients of a  
24 computer, including processor, memory, et cetera.

25 And here there is a portion that says, just like any

1 software, sometimes you need -- from time to time you need to  
2 upgrade it or update it, and that's what's done in this case to  
3 the controller. This happens to be the desktop controller.  
4 Same applies to the controller, the CR100.

5 **MR. PAK:** So we'll go to the next slide.

6 **BY MR. PAK:**

7 **Q.** Are you showing you us here the ZonePlayers as well as the  
8 controller for the Sonos 2005 prior art system?

9 **A.** That's right. The ZonePlayers, there are three of them --  
10 102, 104, and 106 -- on the left and then CR100, the  
11 controller, is up on the top right.

12 **Q.** And what is a set AVTransport URI message that is being  
13 sent from the controller down to ZonePlayer 104?

14 **A.** So when I choose to -- when I want to group two rooms  
15 together, let's say two ZonePlayers together, I go to one of  
16 them. In this case I want went into ZonePlayer 102 and then I  
17 said "Link it with ZonePlayer 104." And then the system  
18 generates a message called a set AVTransport URI message, which  
19 is received by ZonePlayer 104. And that's an indication that  
20 it should be part of a group.

21 **Q.** And does that indication message satisfy the  
22 indication-related limitations of the claims at issue in this  
23 case?

24 **A.** It does.

25 **Q.** All right. And where did you find this set AVTransport

1 URI message?

2 **A.** You can see it in the source code, and also we have  
3 deposition testimony and interrogatory responses that talk  
4 about the set AVTransport URI message.

5 **Q.** Just to remind the jury, was the source code for the Sonos  
6 2005 prior art system before the patent examiner when he was  
7 reviewing these patents?

8 **A.** No, it was not.

9 **Q.** Okay.

10 **MR. PAK:** Let's go to the next slide.

11 **BY MR. PAK:**

12 **Q.** What are you showing here?

13 **A.** So the ZonePlayer 104 -- it's called a participant because  
14 it's not the main coordinator -- as soon as it received the set  
15 AVTransport URI message, it does two things. It takes what it  
16 calls its local channel, essentially the playlist that it plays  
17 music from, and disables it from the local to an external one.

18 And then it sends an AddMember message to the coordinator,  
19 which is ZonePlayer 102, and at that point ZonePlayer 102 takes  
20 that message, the AddMember message, removes -- excuse me --  
21 the identifier of the participant ZonePlayer 104, takes it and  
22 stores it as part of a linked list, it's a particular form of  
23 storage, in what it calls the group management service. And it  
24 stays there for the duration of that particular zone group, and  
25 at that point the group has been formed.

1 Q. And would all of that take place in response to the  
2 controller sending an indication or request to form a group?

3 A. It would, yes.

4 Q. And just for the jury's benefit, 102, the one in the  
5 middle, that was the group coordinator in your testimony?

6 A. That was the group coordinator, that's right.

7 Q. And 104 would be the one that would be part of the group  
8 but it's not actually coordinating the group operation?

9 A. Yeah, it's referred to usually as a participant, but it's  
10 not the main coordinator.

11 MR. PAK: Let's go to the next slide as TX6974, which  
12 is already admitted into evidence at page 5.

13 BY MR. PAK:

14 Q. What are you showing here?

15 A. So this a -- in the previous slide you saw in the  
16 right-hand corner a little tiny screen. This is essentially a  
17 larger version of it, and it shows the display on the  
18 controller which shows that the kitchen ZonePlayer  
19 corresponding to, let's say, ZonePlayer 102 is linked together  
20 with ZonePlayer 104, which is the patio, and now it's available  
21 for playing music in synchrony once you decide to invoke it.

22 So, for example, if there is a button that's not shown  
23 over here, it's on the controller on the right-hand side on the  
24 bottom, it's a "Play" button, if you press on it, it will send  
25 music to the coordinator which will then invoke the group for

1 playing back music in synchrony.

2 Q. All this functionality you've been discussing, was that  
3 all in the prior art Sonos 2005 system?

4 A. It was all part of the Sonos 2005 system, that's right.

5 Q. Okay.

6 MR. PAK: And let's go to the next slide.

7 BY MR. PAK:

8 Q. What are you showing here? We have the controller now for  
9 the Sonos 2005 system. What in particular are you highlighting  
10 about the capability of that prior art system?

11 A. So in the Sonos 2005 system, there was one zone scene that  
12 was available and it was predefined. It was called the Party  
13 Mode or All Zones-Party Mode.

14 Q. What does it mean to say "All Zones-Party Mode"?

15 A. It means that it was a zone group corresponding to all  
16 ZonePlayers in the house. So when you wanted to play music in  
17 all ZonePlayers in the house, the user could just play music  
18 over there.

19 Q. And where is the Party Mode scene defined in the Sonos  
20 2005 prior art system?

21 A. Excuse me.

22 The zone -- the Party Mode is defined as part of the  
23 source code. It's either in the regular source code running on  
24 the desktop controller or as part of what's called the firmware  
25 on the CR100 and the Controller 100, and that is where it's

1 actually defined in the system.

2 Q. And is the Party Mode -- in the Party Mode, is the  
3 membership information about that Party Mode previously saved  
4 before you invoke it?

5 A. Yes. As part of that code, it refers to all of the  
6 ZonePlayers, and those ZonePlayer identifiers are sitting on  
7 the -- on the controller in memory as part of the grouped  
8 apology that it obtains when it just starts up the computer --  
9 the entire system.

10 Q. As a further step, is the zone grouping information or the  
11 membership information for the All Zones-Party Mode also stored  
12 persistently somewhere?

13 A. Yeah. It is stored -- it is stored persistently on that  
14 particular controller and it is available and will ultimately  
15 be stored persistently after you make a request to create the  
16 group on the -- on the actual -- on the coordinator itself.  
17 That's when I was talking about the zone -- the group  
18 management service, that's where it's stored persistently  
19 ultimately.

20 Q. And the group coordinator is one of the ZonePlayers in the  
21 Sonos 2005 system; is that correct?

22 A. That's right. It's the one from which you press the  
23 command that you want Party Mode in that case.

24 Q. In your opinion, having looked at all the evidence, is the  
25 Party Mode, the All Zones-Party Mode, in the Sonos 2005 system

1 a zone scene according to the agreed-upon definition of that  
2 term?

3 **A.** Yes, it is. It's a previously defined group. It's  
4 previously saved and it has a common theme.

5 **Q.** What's that theme?

6 **A.** The theme is party.

7 **Q.** Okay. So let's go to -- actually, can you turn to TX3923?  
8 And you should be looking at Mr. Lambourne's sworn declaration.

9 I'm going to present that as soon as we admit it into  
10 evidence. 3923.

11 **A.** (Witness examines document.)

12 **Q.** Do you have it in front of you? Or I can show it to you  
13 on the screen if it will be faster.

14 **A.** (Witness examines document.) Yeah, I do have it.

15 **Q.** Okay. What is that declaration?

16 **A.** It's a -- it's a declaration by Mr. Lambourne.

17 **Q.** And did you rely upon it in forming your opinions?

18 **A.** I did, yes.

19 **MR. PAK:** Your Honor, I'd like to move TX3923 into  
20 evidence.

21 **THE COURT:** Any objection?

22 **MR. ROBERTS:** No objection.

23 **THE COURT:** Thank you. Received in evidence.

24 (Trial Exhibit 3923 received in evidence.)

25 **MR. PAK:** Let's show the next slide.



1 BY MR. PAK:

2 Q. So what did Mr. Lambourne say about the All Zones-Party  
3 Mode that was part of the Sonos 2005 prior art system?

4 A. Well, he said the fact that the All Zones-Party Mode is  
5 hardcoded, that's what I was referring to as being previously  
6 defined in the software, and he also highlighted the benefit of  
7 it, which it has this ability with a single touch to do what  
8 would be required before the zone scene idea to go through  
9 individually and link all of the ZonePlayers together so it can  
10 save the number of touches that you have to perform.

11 And then it also indicates over here in the excerpt that  
12 he included that you can add and drop members from a zone  
13 group, and that is part of what is shown over here in this  
14 slide.

15 Q. And based on this document and the testimony of  
16 Mr. Millington and your independent review, can you take the  
17 Party Mode, the All Zones-Party Mode, that existed in the Sonos  
18 2005 prior art system and decide to drop one of the ZonePlayers  
19 from that Party Mode?

20 A. Yeah, you can drop one of the ZonePlayers from the Party  
21 Mode from any zones -- from any zone group.

22 Q. And were you here for the trial testimony of Mr. Lambourne  
23 in this case?

24 A. Yes.

25 Q. Okay.

1           **MR. PAK:** Let's go to the next slide.

2           **BY MR. PAK:**

3           **Q.** So this is from page 520:21 to 521:10. This is the trial  
4 testimony that Mr. Lambourne gave under oath.

5           And do you recall that he was talking about one of the  
6 historical documents from 2005 time period?

7           **A.** I do.

8           **Q.** And this was the alarm clock UI specification that  
9 Mr. Lambourne himself wrote. Do you recall that?

10          **A.** I do.

11          **Q.** That was around the same time that he was writing the UI  
12 specification for zone scenes. Do you recall that?

13          **A.** I do.

14          **Q.** And in that historical document from 2005, Mr. Lambourne  
15 wrote (as read):

16                 "Party Mode that currently ships with the product is  
17 one example of a zone scene."

18          Do you see that?

19          **A.** I do.

20          **Q.** And he says (as read):

21                 "Yes, that's what I wrote."

22          Do you see that?

23          **A.** I do.

24          **Q.** And based on your independent review, do you agree with  
25 Mr. Lambourne's historical document that the Party Mode in

1 Sonos 2005 prior art system is a zone scene?

2 **A.** Yeah, Party Mode is a zone scene in my view.

3 **Q.** And we clarified in that trial testimony (as read):

4 "You were referring to the Party Mode that existed in  
5 the Sonos 2005 prior art system; correct?"

6 He says (as read):

7 "I was referring to Party Mode of the original  
8 product, yes."

9 And is that consistent with your testimony?

10 **A.** Yeah. The Party Mode existed in the Sonos 2005 system and  
11 it was a zone scene. I agree with that.

12 **Q.** Okay.

13 **MR. PAK:** Let's go to the next slide.

14 **BY MR. PAK:**

15 **Q.** So we talked about how you send this indication message,  
16 the set AVTransport URI message, for normal groups, but I want  
17 to talk about All Zones-Party Mode that existed in the Sonos  
18 2005 prior art system.

19 Are you with me?

20 **A.** I am.

21 **Q.** So can you explain briefly to the jury how would the All  
22 Zones-Party Mode indicate to all the ZonePlayers in the house,  
23 "Hey, you're part of the Party Mode"?

24 **A.** Okay. So it would work similarly. You go into one of the  
25 rooms, in this case you would go into the ZonePlayer 102 but on

1 the controller, and then it would give you the option of which  
2 other ZonePlayers you want to connect to and it would give you  
3 ZonePlayer 104, 106, and also give you the option of Party  
4 Mode.

5 You could press "Party Mode," and then once the user  
6 presses "Party Mode," it sends those same set AVTransport URI  
7 messages and this time to all the other participants -- this  
8 time there are two, ZonePlayer 104 and ZonePlayer 106 -- and  
9 they would receive it and operate in a similar manner from that  
10 point on.

11 **Q.** Okay. And here are you describing the controller  
12 functionality as well of transmitting these indication  
13 messages?

14 **A.** That's right. Every message that we're talking about is  
15 transmitted from the controller and received by a ZonePlayer.

16 **MR. PAK:** So next slide.

17 **BY MR. PAK:**

18 **Q.** So what happens when all the coordination takes place and  
19 the indication messages have been transmitted and received with  
20 respect to the All Zones-Party Mode?

21 **A.** Yeah, it operates in exactly the manner I described  
22 previously. There is a little snippet of code that changes the  
23 local channel from the local playlist to the external playlist  
24 corresponding to the coordinator; and then the AddMember  
25 group -- the AddMember message is referred to is sent to the

1 coordinator which uses it to extract the -- extract the  
2 identifier of ZonePlayer 104 and ZonePlayer 106, and then  
3 stores it in its local linked list within the group management  
4 service.

5 **MR. PAK:** So now if we go to the next slide.

6 **BY MR. PAK:**

7 **Q.** So we saw the first Party Mode -- first zone group as well  
8 as Party Mode group. Is there overlap between those two groups  
9 in the Sonos 2005 prior art system?

10 **A.** Yes, there is. The Party Mode by definition overlaps with  
11 every other possible group.

12 **Q.** And we saw that Party Mode group is one of the zone scenes  
13 required by the claims; correct?

14 **A.** It's an example of a zone scene required and the Party  
15 Mode satisfies it.

16 **Q.** But could you store the first zone group in this example  
17 in the Sonos 2005 prior art system for later use as part of  
18 group playback?

19 **A.** No, you could not. The zone group corresponding to 102  
20 and 104, you could use it while Party Mode is in the background  
21 but you cannot store it for later use.

22 **Q.** We're going to walk through some of the evidence probably  
23 tomorrow in the morning, but what's your opinion on whether a  
24 person of ordinary skill in the art who's got the education and  
25 has access to all the prior art knowledge, how obvious would it

1 be to modify the Sonos 2005 system to create -- to save the  
2 first zone group here that you've already created in the  
3 system?

4 **A.** It will be a trivial change in my view.

5 **Q.** And why would it be trivial?

6 **A.** Because we are talking about saving it for later, which  
7 means something very simple. It means that you need to keep on  
8 operating as you are currently until you need it; and when you  
9 need it, you have to make sure it's available. So as long as  
10 you allow for those two things, you meet the criteria of saving  
11 it for later.

12 **Q.** Okay.

13 **MR. PAK:** So with that discussion, let's jump to the  
14 next slide.

15 (Pause in proceedings.)

16 **BY MR. PAK:**

17 **Q.** Now, on claim 1 of the '966 patent, I want to streamline  
18 the discussion. Are you relying on the same evidence that you  
19 were describing for the system overall that you laid out in  
20 your expert report?

21 **A.** I am. As I mentioned previously, the network device  
22 corresponds to -- of the claim 1 of the '885 patent corresponds  
23 to the computing device or controller of claim 1 of the '966  
24 patent. And I'm relying -- and based on the same evidence and  
25 analysis I just presented for claim limitation 1.6 of the '885

1 patent, it satisfies all of the limitations, 1.0 to 1.6 and 1.9  
2 of claim 1 of the '966 patent.

3 **Q.** Okay. And when you prepared your expert report, did you  
4 do the same thing? Did you describe this overall system for  
5 Sonos 2005 once for the '885 and then cross-reference it later  
6 as support for the claim 1 limitations of the '966 patent?

7 **A.** Yes, I did. I didn't present my analysis from the point  
8 of view of a ZonePlayer or from the controller point of view.  
9 I presented it from a bird's-eye point of view as for the  
10 system as a whole, and I presented it once and applied it for  
11 both claims.

12 **Q.** Looking at claim 1 of the '966 patent for limitations from  
13 1.0 to 1.6 and 1.9, what is your opinion on whether those  
14 limitations are disclosed in the Sonos 2005 prior art system?

15 **A.** Yeah. As I mentioned, those are all satisfied by Sonos  
16 2005 based on the same evidence and analysis I just presented  
17 for claim limitation 1.6 of the '885 patent.

18 **Q.** Thank you.

19 **DEFENSE COUNSEL:** And, Your Honor, I'm going to move  
20 on to another claim, but maybe this might be a good time for a  
21 break or I can keep a little bit longer.

22 **THE COURT:** Well, we are almost at 1:00 o'clock.

23 So have a safe drive home. We'll see you tomorrow at the  
24 normal time. Please remember the admonition.

25 **THE CLERK:** All rise for the jury.

1 (Proceedings were heard outside the presence of the jury:)

2 **THE COURT:** Okay. The witness can step down. Thank  
3 you.

4 Everyone else be seated, please.

5 Any issues for the judge?

6 **MR. PAK:** Not from Google, Your Honor.

7 **MR. ROBERTS:** Your Honor, I would like permission to  
8 brief for the Court the fact that there was no disclosure in  
9 the interrogatories, in the expert reports, of any theory about  
10 any three mode or tearing down the app is necessary -- that  
11 that -- somehow the fact that the app is brought down means  
12 that standalone mode is not met.

13 In the expert reports it was entirely about the fact that  
14 the, quote, StopCurrentApp function stops playback, and so this  
15 is a new argument that they have brought into court today by  
16 getting the fact witness to testify about it and then having  
17 the expert adopt it even though it's not in the expert report.

18 **THE COURT:** Sure. Go ahead. And five pages, though.

19 **MR. ROBERTS:** Thank you.

20 **MR. PAK:** Your Honor, may we respond once they've --

21 **THE COURT:** Yes, all right. Mr. Roberts is due at  
22 5:00 p.m. today. Your answer is due at 8:00 p.m. today.

23 **MR. PAK:** Thank you, Your Honor.

24 **THE COURT:** Five pages as well.

25 Now, is there any chance you're going to finish your case



1 tomorrow?

2           **MR. PAK:** I, you know, took a little bit longer today  
3 than I expected with the questions, but I'm going to try very  
4 hard to try to finish our case tomorrow.

5           **THE COURT:** All right. The other side should be ready  
6 with your rebuttal. If you are not, we'll just go to the jury.  
7 So please be ready.

8           **MR. PAK:** Thank you, Your Honor.

9           **THE COURT:** I have some questions. We're working hard  
10 on the instructions. I'm not going to define everything in  
11 these claims, and I would like your -- is it your view that we  
12 will just go with plain and ordinary meaning?

13           **MR. PAK:** I do think -- you know, we researched the  
14 issue, Your Honor. I think we would -- under mode to micro,  
15 since there is a dispute now, we would like a construction of  
16 two elements. One is the "while operating in standalone mode."  
17 Our view is that it requires continuous output or actively  
18 playing audio as reflected in the prosecution history. They  
19 disagree. We would like a construction on that.

20           We would also like a construction on the storage element  
21 of the '966 patent, that that is a distinct step from the  
22 creation step.

23           And so those are the two that we wanted to bring to  
24 Your Honor's attention.

25           And then obviously Your Honor asked for briefing on the

1 computing device, on the claim construction of that, whether  
2 for the '966 claims that requires a computing device with the  
3 configuration of the ZonePlayers or the accused speakers in  
4 combination with the Home app.

5 And so those are the three issues that we would like  
6 Your Honor's guidance on.

7 **THE COURT:** Well, I don't remember the last point, so  
8 okay.

9 What's your view? What needs to be construed?

10 **MR. SULLIVAN:** Nothing, Your Honor. These are plain  
11 and ordinary meaning terms. You know, none of this was raised.  
12 We've had two courts now look at claim construction issues.  
13 None of this has been raised before. We don't think it's  
14 appropriate to raise it now, and we certainly don't want to  
15 burden Your Honor with it.

16 **THE COURT:** Well, thank you for that part.

17 **MR. SULLIVAN:** You're welcome.

18 **THE COURT:** But did -- in the runup to trial, did  
19 Google ask me to construe "standalone mode"?

20 **MR. PAK:** I don't think that happened, Your Honor. I  
21 don't think we did ask for Your Honor's construction on that.

22 **THE COURT:** How about "storage"?

23 **MR. PAK:** Again, I don't think that was part of the  
24 original *Markman* process, but I'm not sure. We did the  
25 showdown order. I don't -- did Your Honor hold a *Markman*

1 hearing? I don't recall that happening.

2 **THE COURT:** I don't hold *Markman* hearings. I just do  
3 it as part of the summary judgment, or in this case it's going  
4 to be part of the instructions.

5 So -- but I would like to know, did you -- you can submit  
6 a brief tonight too on the history of any constructions of  
7 "storage" and "standalone" and requests for constructions of  
8 those terms.

9 And I don't know the answer. Let's say you didn't ask for  
10 that, nobody asked for that, what's the answer? What -- we  
11 just go with plain and ordinary meaning.

12 **MR. PAK:** I think the Federal Circuit in *O2 Micro*,  
13 Your Honor, has told us sometimes plain and ordinary meaning,  
14 what that means can become a dispute; and, therefore, when  
15 there is a dispute that arises even during trial, that --

16 **THE COURT:** Put that in your brief.

17 **MR. PAK:** Yes, Your Honor, I will do that.

18 **THE COURT:** Put that in your brief because --

19 **MR. SULLIVAN:** Your Honor, just as a reminder, we did  
20 have claim construction briefs filed in this case, I believe,  
21 even though there was no hearing. Again, these terms weren't  
22 raised back then. They weren't raised in the summary judgment  
23 motions, as far as I'm concerned.

24 **THE COURT:** Okay. Why don't you brief that yourself  
25 so that I can, you know, make sure that everything you're

1 telling me has been vetted.

2 **MR. PAK:** Will do, Your Honor.

3 **MR. SULLIVAN:** Yes, Your Honor.

4 **THE COURT:** Anything else you want to bring up today?

5 **MR. PAK:** Not for Google, Your Honor.

6 **MR. SULLIVAN:** The only thing I just wanted to give  
7 you a heads-up on, Your Honor, is by my count, I do believe  
8 we'll probably finish by about 10:00 o'clock with our time on  
9 Thursday. I just wanted to give you a heads-up with that.

10 **THE COURT:** Thank you.

11 **MR. SULLIVAN:** You're welcome.

12 **MR. PAK:** Thank you, Your Honor.

13 **THE COURT:** See you tomorrow at the normal time.

14 **THE CLERK:** Court is in recess.

15 (Proceedings adjourned at 1:04 p.m.)

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CERTIFICATE OF REPORTER

I certify that the foregoing is a correct transcript  
from the record of proceedings in the above-entitled matter.

DATE: Tuesday, May 16, 2023



Marla F. Knox, CSR No. 14421, RPR, CRR, RMR  
United States District Court - Official Reporter